



SECTION 1201 RULEMAKING:
Seventh Triennial Proceeding to Determine
Exemptions to the Prohibition on Circumvention

RECOMMENDATION OF THE ACTING REGISTER OF COPYRIGHTS

OCTOBER 2018





The Register of Copyrights of the United States of America

United States Copyright Office · 101 Independence Avenue SE · Washington, DC 20559-6000 · (202) 707-8350

October 5, 2018

Carla Hayden
Librarian of Congress
Library of Congress
101 Independence Ave. SE
Washington, DC 20540

Dear Dr. Hayden:

Pursuant to my statutory obligation under 17 U.S.C. § 1201(a)(1)(C), please find the attached recommendation relating to the rulemaking on exemptions from the prohibition on circumvention of technological measures that control access to copyrighted works.

Sincerely,

A handwritten signature in blue ink, appearing to read "Karyn A. Temple".

Karyn A. Temple
Acting Register and Director
U.S. Copyright Office

cc: Elizabeth A. Pugh, General Counsel, Library of Congress

**Section 1201 Rulemaking:
Seventh Triennial Proceeding to Determine
Exemptions to the Prohibition on Circumvention
Recommendation of the Acting Register of Copyrights**

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
II.	LEGAL BACKGROUND.....	9
A.	Section 1201(a)(1).....	9
B.	Relationship to Other Provisions of Section 1201 and Other Laws.....	11
C.	Rulemaking Standards	12
D.	Streamlined Renewal Process	17
III.	HISTORY OF SEVENTH TRIENNIAL PROCEEDING.....	20
IV.	RENEWAL RECOMMENDATIONS	22
V.	DISCUSSION OF NEW PROPOSED CLASSES.....	31
A.	Proposed Class 1: Audiovisual Works—Criticism and Comment	31
B.	Proposed Class 2: Audiovisual Works—Accessibility	89
C.	Proposed Class 3: Audiovisual Works—Space-shifting.....	111
D.	Proposed Class 4: Audiovisual Works—HDCP/HDMI	128
E.	Proposed Class 5: Computer Programs—Unlocking	145
F.	Proposed Class 6: Computer Programs—Jailbreaking	163
G.	Proposed Class 7: Computer Programs—Repair	184
H.	Proposed Class 9: Computer Programs—Software Preservation*	230
I.	Proposed Class 8: Computer Programs – Video Game Preservation	255
J.	Proposed Class 10: Computer Programs—Security Research	283
K.	Proposed Class 11: Computer Programs—Avionics	314
L.	Proposed Class 12: Computer Programs—3D Printing	318
	RECOMMENDED REGULATORY LANGUAGE	330

* Because the issues in this class are relevant to the analysis in Proposed Class 8, the Acting Register addresses this class first.

I. Introduction

Enacted in 1998 as part of the Digital Millennium Copyright Act (“DMCA”), section 1201 of Title 17 plays a critical role in fostering the dissemination and enjoyment of creative works online. In adopting section 1201, Congress recognized that the development of the online marketplace for copyrighted works required a legal framework that adequately addressed the harm of internet piracy and encouraged copyright owners to make their works available to the public in emerging digital formats.¹ Section 1201 accordingly affords copyright owners important legal protections against those who circumvent technological measures used to prevent unauthorized access to their works. Many have credited section 1201 as a key factor in the growth of the vast array of content delivery platforms available to consumers today, which offer more lawful options to access expressive material than ever existed previously.²

In adopting these new protections, however, Congress also recognized the need to ensure that legitimate uses of copyrighted works not be inhibited unnecessarily. The triennial section 1201 rulemaking is a key part of the statutory scheme, striking a balance between copyright and digital technologies. Every three years, the Librarian of Congress, upon the recommendation of the Register of Copyrights, determines whether the prohibition on circumvention is having, or is likely to have, an adverse effect on users’ ability to make noninfringing uses of a particular class of copyrighted works.³ Upon such a determination, the Librarian may adopt a temporary exemption waiving the prohibition for such users for the ensuing three-year period.⁴

The rulemaking occurs through a formal public process administered by the Register of Copyrights, who consults with the National Telecommunications and Information Administration of the Department of Commerce (“NTIA”). The first rulemaking was completed in 2000, and subsequent rulemakings have taken place every three years since then.

¹ See U.S. COPYRIGHT OFFICE, SECTION 1201 OF TITLE 17 9–10 (2017), <https://www.copyright.gov/policy/1201/section-1201-full-report.pdf> (“Section 1201 Report”).

² See, e.g., *Chapter 12 of Title 17: Hearing Before the Subcomm. on Courts, Intellectual Prop. & the Internet of the H. Comm. on the Judiciary*, 113th Cong. 2 (2014) (statement of Rep. Tom Marino, Vice-Chairman, Subcomm. on Courts, Intellectual Prop. & the Internet) (“The digital economy has enabled wide distribution of movies, music, eBooks and other digital content. Chapter 12 seems to have a lot to do with [that] economic growth”); *id.* at 3 (statement of Rep. Jerrold Nadler, Ranking Member, Subcomm. on Courts, Intellectual Prop. & the Internet) (“Section 1201 has proven to be extremely helpful to creators because it has helped creators to have the confidence to provide video content over the internet despite the risk of piracy.”).

³ 17 U.S.C. § 1201(a)(1)(C).

⁴ *Id.* § 1201(a)(1)(D).

Revised Rulemaking Procedures

For this seventh triennial proceeding, following a comprehensive policy study,⁵ the Copyright Office implemented new streamlining procedures to facilitate the renewal of previously adopted exemptions to which there is no meaningful opposition. This process proved successful, allowing stakeholders to seek renewal of noncontroversial exemptions—some of which had been repeatedly granted over multiple rulemakings—without the need to provide wholly new evidentiary showings in support. For example, in 2015, the American Foundation for the Blind participated in three rounds of comments and sent two affiliates to a hearing regarding an unopposed exemption to facilitate assistive technology for e-books. This time, the same exemption was renewed through a brief four-paragraph statement.

In fact, the Office did not receive meaningful opposition to renewal of any of the exemptions granted in the 2015 rulemaking, which enabled the Acting Register to announce her intention to recommend readoption of those exemptions at the early stages of this proceeding. This in turn allowed participants to concentrate their energies on new proposals, including requested expansions of existing exemptions. Indeed, the significant number of petitions received in this cycle indicates that stakeholders now are able to devote resources to a broad range of additional issues.

The Acting Register expects that the streamlining process likewise will benefit the records in future proceedings. In this regard, the new procedures underscore the importance of ensuring that exemption proposals are supported by sufficient evidence, as the same record can now be relied upon in multiple subsequent proceedings. At the same time, the process gives opponents the opportunity to demonstrate that the factual or legal grounds supporting an exemption in a prior cycle have changed to the point that the renewal petition should be considered as part of the full rulemaking process. The Acting Register continues to believe that a legislative change providing for presumptive renewal of existing exemptions would introduce even greater efficiencies by eliminating the need for parties to petition for, and the Office to consider, readoption of uncontested exemptions.⁶ Nevertheless, the streamlining procedures appear to have accomplished their goal of reducing unnecessary burdens on both participants and the Office.

Policy Considerations

This proceeding involves many of the same proposed uses of copyrighted works that the Office has frequently considered in prior rulemakings. Several exemption petitions seek

⁵ See Section 1201 Report at 141.

⁶ See *id.* at 141; *The Register's Perspective on Copyright Review: Hearing Before the H. Comm. on the Judiciary*, 114th Cong. 27 (2015) (statement of Maria A. Pallante, Register of Copyrights and Dir., U.S. Copyright Office).

to access traditional forms of expressive content for purposes such as teaching and facilitating use by persons with disabilities—activities that Congress undoubtedly had in mind when it created the triennial review process and that have long been a focus of the rulemaking. This cycle also saw an increased focus on ensuring that preservation activities undertaken by libraries, archives, and museums can reach a wide and increasing range of digital works, including computer software and video games.

At the same time, the landscape for the seventh section 1201 rulemaking differs in important ways from that of its inception in 1998, and even from 2008. A significant portion of the exemption proposals received in this cycle reflect a new consumer reality resulting from the growing pervasiveness of the Internet of Things. Like the 2015 rulemaking, this proceeding saw numerous requests to access copyrighted software contained in consumer products and other devices and systems. Proponents of these exemptions do not wish to access such software for its creative content, but instead are seeking to study, repair, or modify the functionality of the device or system itself. In the written comments and public hearings, many of these stakeholders expressed frustration at the notion that copyright should prevent owners of devices from repairing, tinkering with, or otherwise exercising control over their own property. In the words of one individual, “[i]t’s my own damn car, I paid for it, I should be able to repair it or have the person of my choice do it for me.”⁷

Several of these proposals seek to extend exemptions granted in the last rulemaking to a broader range of products. For example, security researchers currently authorized to circumvent technological measures in consumer devices, vehicles, and medical devices petition to apply that exemption to software-enabled devices generally. Similarly, other petitioners seek to broaden the current exemption for repair and modification of motor vehicles to encompass other devices ranging from smartphones to home appliances to consumables. In considering these proposals, the Office again notes that many of these activities seem to “have little to do with the consumption of creative content or the core concerns of copyright.”⁸ It should be emphasized, however, that section 1201 does not permit the Acting Register to recommend, or the Librarian to grant, exemptions on that basis alone. They may do so only where specific evidence demonstrates that the statute

⁷ DeVolve Class 7 Reply. Comments received in this rulemaking are available at <http://copyright.gov/1201/2018>. References to these comments in this Recommendation are by party name (abbreviated where appropriate), followed by class number and “Initial,” “Opp’n,” or “Reply” for comments submitted in the first, second, or third round, respectively.

⁸ REGISTER OF COPYRIGHTS, SECTION 1201 RULEMAKING: SIXTH TRIENNIAL PROCEEDING TO DETERMINE EXEMPTIONS TO THE PROHIBITION ON CIRCUMVENTION, RECOMMENDATION OF THE REGISTER OF COPYRIGHTS 2 (2015). References to the Register’s Recommendations in prior rulemakings are cited by the year of publication followed by “Recommendation” (e.g., “2015 Recommendation”). Prior Recommendations are available on the Copyright Office website at <https://www.copyright.gov/1201/>.

is causing, or is likely to cause, an adverse impact on noninfringing uses of copyrighted works. Moreover, the Acting Register's ability to consider broad exemptions in these categories, encompassing wide and varied assortments of devices, is limited by the statutory rulemaking standard, which restricts the inquiry to "particular class[es] of copyrighted works" for which there is evidence of adverse effects.⁹

It is also important to acknowledge the significant countervailing interests that could be implicated by overbroad exemptions. Copyright owners participating in this proceeding emphasized the substantial investments they have made in distributing their creative works through subscription streaming services and other protected ways to lawfully access music, movies, games, books, and more. These platforms provide a critical revenue source for modern artists and authors, and are supplanting more traditional avenues for users to access a wide variety of cultural works. And they all rely on ensuring that the devices and formats used to access this content remain secure and are not used to facilitate infringement. Confronting a very real history of massive piracy of music, movies, and other creative works, rightsholders have concerns over what they characterize as a perfunctory dismissal of serious infringement risks and the blurring of important nuances in the copyright law.

Given these competing policy interests, as well as the inherent constraints of the rulemaking process, the Acting Register recently has advised Congress that many of these issues would be appropriate subjects for legislation. Specifically, in its 2017 Section 1201 Report, the Office recommended that Congress consider expanding the permanent exemption under section 1201(j) permitting circumvention for purposes of security testing.¹⁰ Additionally, the Office recommended congressional consideration of new permanent exemptions for diagnosis, repair, and maintenance of software-enabled devices,¹¹ and for unlocking of wireless devices.¹² While the Acting Register has attempted to appropriately balance stakeholder interests to the extent permitted under the regulatory framework, legislative review would enable Congress and interested parties to address these issues in a more comprehensive manner.

This rulemaking also echoes the 2015 proceeding in that some proposed exemptions potentially involve activities subject to legal or regulatory regimes outside of copyright. In 2015, the Environmental Protection Agency, the Department of Transportation, and the Food and Drug Administration expressed concerns over the impact that the proposed exemptions for security research and vehicle modification could have on health and safety matters within their jurisdictions. While recognizing that such

⁹ 17 U.S.C. § 1201(a)(1)(C).

¹⁰ Section 1201 Report at 71–80.

¹¹ *Id.* at 88–95.

¹² *Id.* at 97–99.

concerns did not directly implicate copyright, the Register concluded that they were sufficiently serious that other agencies should have the opportunity to prepare for any potential impacts. Therefore, the Register recommended, and the Librarian implemented, a one-year delay in the effective date of those exemptions.¹³ Subsequently, however, the Office noted that it did not anticipate the need for future delays now that those agencies have had time to respond, and that going forward it “will generally decline to consider health, safety, and environmental concerns” as part of the rulemaking.¹⁴ Consistent with those statements, the Acting Register in this proceeding did not accord significant weight to such considerations, despite the urging of some participants. While the Acting Register certainly appreciates the seriousness of these issues, they generally are best addressed through other legal frameworks and by agencies with expertise in those areas. Indeed, in contrast to 2015, only one additional federal agency submitted comments in this proceeding, and that agency—the U.S. Department of Justice’s Computer Crime and Intellectual Property Section (“CCIPS”)—agrees with this view.

Finally, this proceeding again raises the question of whether, or to what extent, third parties, such as independent automobile repair shops, may provide assistance to persons entitled to exercise an exemption. In 2015 the Register declined requests to recommend an exemption for circumvention “on behalf of the owner” of a motor vehicle, finding that such assistance could run afoul of the prohibition on trafficking in circumvention “service[s]” under section 1201(a)(2) and (b). The anti-trafficking provisions provide vital protections to copyright owners, and Congress did not authorize the Librarian to grant exemptions from them. In this proceeding, proponents of the vehicle repair exemption again request provision for third-party assistance, arguing that limiting the exemption to individual owners threatens to render it effectively meaningless for those who lack the technical knowledge to access and manipulate increasingly complex embedded computer systems. The Acting Register is sympathetic to these concerns and has attempted to draft the exemption language in a manner that accommodates such assistance to the extent it does not implicate the anti-trafficking provisions. As the Office has recently noted, however, the scope of those provisions is uncertain,¹⁵ and it is beyond the scope of the rulemaking for the Acting Register to opine on that issue. The Office continues to believe that legislation permitting third-party assistance in appropriate circumstances would benefit stakeholders and provide valuable clarity to the overall statutory scheme.¹⁶

¹³ See 2015 Recommendation at 3.

¹⁴ Section 1201 Report at 125–26.

¹⁵ See *id.* at 56–59.

¹⁶ See *id.* at 59–61.

Summary of Recommendations

The Librarian has previously adopted six sets of exemptions under section 1201 based upon prior Recommendations of the Register.¹⁷ In this seventh triennial proceeding, as discussed more fully below, the Acting Register recommends that the Librarian adopt another set of exemptions covering the following types of uses:

- Excerpts of motion pictures (including television programs and videos) for criticism and comment:
 - For educational uses,
 - By college and university or K-12 faculty and students
 - By faculty of massive open online courses (“MOOCs”)
 - By educators and participants in digital and literacy programs offered by libraries, museums and other nonprofits
 - For nonfiction multimedia e-books
 - For uses in documentary films and other films where the use is in parody or for a biographical or historically significant nature
 - For uses in noncommercial videos
- Motion pictures (including television programs and videos), for the provision of captioning and/or audio description by disability services offices or similar units at educational institutions for students with disabilities
- Literary works distributed electronically (*i.e.*, e-books), for use with assistive technologies for persons who are blind, visually impaired or have print disabilities
- Literary works consisting of compilations of data generated by implanted medical devices and corresponding personal monitoring systems
- Computer programs that operate the following types of devices, to allow connection of a new or used device to an alternative wireless network (“unlocking”):

¹⁷ Each of these Final Rules and the Register’s Recommendations can be found at <http://www.copyright.gov/1201>.

- Cellphones
- Tablets
- Mobile hotspots
- Wearable devices (*e.g.*, smartwatches)
- Computer programs that operate the following types of devices, to allow the device to interoperate with or to remove software applications (“jailbreaking”):
 - Smartphones
 - Tablets and other all-purpose mobile computing devices
 - Smart TVs
 - Voice assistant devices
- Computer programs that control motorized land vehicles, including farm equipment, for purposes of diagnosis, repair, or modification of the vehicle, including to access diagnostic data
- Computer programs that control smartphones, home appliances, or home systems, for diagnosis, maintenance, or repair of the device or system
- Computer programs for purposes of good-faith security research
- Computer programs other than video games, for the preservation of computer programs and computer program-dependent materials by libraries, archives, and museums
- Video games for which outside server support has been discontinued, to allow individual play by gamers and preservation of games by libraries, archives, and museums (as well as necessary jailbreaking of console computer code for preservation uses only), and preservation of discontinued video games that never required server support
- Computer programs that operate 3D printers, to allow use of alternative feedstock

The Register declines to recommend the following requested exemptions:

- Audiovisual works, for broad-based space-shifting and format-shifting (declined due to lack of legal and factual support for exemption)

- Audiovisual works protected by HDCP/HDMI, for non-infringing uses (declined due to lack of legal and factual support for exemption)
- Access to avionics data (declined due to lack of factual support that access controls were protecting copyrighted works)

II. Legal Background

A. Section 1201(a)(1)

In 1998, Congress enacted the DMCA to implement provisions of the World Intellectual Property Organization (“WIPO”) Copyright Treaty and WIPO Performances and Phonograms Treaty. Title I of the DMCA added a new chapter 12 to title 17 of the United States Code, which prohibits circumvention of technological measures employed by or on behalf of copyright owners to protect access to their works. In enacting section 1201, Congress recognized that the same features making digital technology a valuable delivery mechanism—the ability to quickly create and distribute near-perfect copies of works on a vast scale—also carry the potential to enable piracy to a degree unimaginable in the analog context. As a result, Congress sought to support copyright owners’ use of mechanisms known as “technological protection measures,” or “TPMs,” when offering works in digital form.

Specifically, section 1201(a)(1) states, in pertinent part, that “[n]o person shall circumvent a technological measure that effectively controls access to a work protected under [title 17].” The phrase “circumvent a technological measure” means “to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner.”¹⁸ A technological measure that “effectively controls access to a work” is one that “in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work.”¹⁹

In addition to the blanket prohibition on circumvention, Congress created permanent exemptions to preserve access to works for certain legitimate purposes (*e.g.*, library browsing, reverse engineering) and to allow users to legally circumvent TPMs in limited circumstances. As originally drafted, however, section 1201 did not provide a process to create additional exemptions from the blanket anti-circumvention prohibition. The House of Representatives Committee on Commerce (“Commerce Committee” or “Committee”) was concerned that the lack of an ability to waive the circumvention prohibition might undermine the fair use of copyrighted works.²⁰ The Committee concluded that it would be appropriate to “modify the flat prohibition against the circumvention of effective technological measures that control access to copyrighted materials, in order to ensure that access for lawful purposes is not unjustifiably

¹⁸ 17 U.S.C. § 1201(a)(3)(A).

¹⁹ *Id.* § 1201(a)(3)(B).

²⁰ H.R. REP. NO. 105-551, pt. 2, at 36 (1998) (“Commerce Comm. Report”).

diminished.”²¹ Congress thus created this rulemaking proceeding to address lawful uses of copyrighted works not addressed by the permanent exemptions.

The Commerce Committee characterized the rulemaking proceeding as a “‘fail-safe’ mechanism,” stating that “[t]his mechanism would monitor developments in the marketplace for copyrighted materials, and allow the enforceability of the prohibition against the act of circumvention to be selectively waived, for limited time periods, if necessary to prevent a diminution in the availability to individual users of a particular category of copyrighted materials.”²²

As ultimately enacted, the “fail-safe” mechanism in section 1201(a)(1) requires the Librarian of Congress, following a rulemaking proceeding conducted by the Copyright Office, to publish any class of copyrighted works as to which the Librarian has determined that noninfringing uses by persons who are users of a copyrighted work are, or are likely to be, adversely affected by the prohibition against circumvention in the succeeding three-year period, thereby exempting that class from the prohibition for that period.²³ The relatively quick three-year turnover of the exemptions was put in place by Congress to allow the rulemaking to be “fully considered and fairly decided on the basis of real marketplace developments,”²⁴ and flexible enough to accommodate these market developments. The Librarian’s determination must be based upon the Register of Copyrights’ recommendation.²⁵ In making her recommendation, the Register consults with the Assistant Secretary for Communications and Information of the Department of Commerce, who oversees NTIA.²⁶

As explained by the Commerce Committee, “[t]he goal of the proceeding is to assess whether the implementation of technological protection measures that effectively control access to copyrighted works is adversely affecting the ability of individual users to make lawful uses of copyrighted works.”²⁷ To do this, the Register develops a comprehensive administrative record using information submitted by interested parties, and makes a recommendation to the Librarian on the basis of that record.²⁸ Based on the

²¹ *Id.*

²² *Id.*

²³ See 17 U.S.C. § 1201(a)(1).

²⁴ Commerce Comm. Report at 36.

²⁵ 17 U.S.C. § 1201(a)(1)(C); H.R. REP. NO. 105-796, at 64 (1998) (“Conference Report”).

²⁶ 17 U.S.C. § 1201(a)(1)(C).

²⁷ See Commerce Comm. Report at 37.

²⁸ See Conference Report at 64 (“[A]s is typical with other rulemaking under title 17, and in recognition of the expertise of the Copyright Office, the Register of Copyrights will conduct the rulemaking, including providing notice of the rulemaking, seeking comments from the public, consulting with the Assistant Secretary for Communications and Information of the Department

Recommendation, the Librarian promulgates the final rule setting forth any exempted classes of works.

B. Relationship to Other Provisions of Section 1201 and Other Laws

Temporary exemptions promulgated under section 1201(a)(1) apply only to circumventing technological measures that control “access” to copyrighted works. Section 1201 also contains provisions prohibiting the manufacturing of or trafficking in technologies, products, services, or devices that are primarily designed or produced for purposes of circumventing TPMs. Section 1201(a)(2) restricts trafficking in circumvention devices or services used to circumvent technological measures that control access to copyrighted works (referred to as “access controls”).²⁹ Similarly, section 1201(b) restricts trafficking in products and services used to circumvent technological measures that protect the exclusive rights of the copyright owners in their works, including the right to reproduce these works (referred to as “copy controls”).³⁰ The Register does not have authority to recommend—nor does the Librarian of Congress have authority to adopt—exemptions for these anti-trafficking prohibitions as part of the triennial rulemaking process.³¹

Section 1201’s permanent exemptions permit specific activities, some of which authorize both circumvention and trafficking, including:

- Section 1201(d), which exempts certain activities of nonprofit libraries, archives, and educational institutions from the circumvention ban in section 1201(a)(1), so that they can “make a good faith determination of whether to acquire a copy of [a] work for the sole purpose of engaging in conduct permitted under this title.”
- Section 1201(e), which exempts “any lawfully authorized investigative, protective, information security, or intelligence activity” of the federal or a state government from the anticircumvention and anti-trafficking provisions in section 1201(a)(1), (a)(2), and (b).

of Commerce and any other agencies that are deemed appropriate, and recommending final regulations in the report to the Librarian.”).

²⁹ 17 U.S.C. § 1201(a)(2).

³⁰ *Id.* § 1201(b).

³¹ *See id.* § 1201(a)(1)(E) (“Neither the exception under subparagraph (B) from the applicability of the prohibition contained in subparagraph (A), nor any determination made in a rulemaking conducted under subparagraph (C), may be used as a defense in any action to enforce any provision of this title other than this paragraph.”).

- Section 1201(f), which exempts certain “reverse engineering” activities from section 1201(a)(1), (a)(2), and (b), “for the sole purpose of identifying and analyzing those elements of [a computer] program that are necessary to achieve interoperability of an independently created computer program with other programs.”
- Section 1201(g), which exempts certain “encryption research” from section 1201(a)(1) and (2) (but not 1201(b)).
- Section 1201(h), which permits courts, in applying section 1201(a)(1) and (2) to a “component or part,” to consider whether the component or part is needed to “prevent the access of minors to material on the Internet.”
- Section 1201(i), which exempts from section 1201(a)(1) circumvention carried out “solely for the purpose of preventing the collection or dissemination of personally identifying information about a natural person who seeks to gain access to the work protected.”
- Section 1201(j), which exempts certain acts of “security testing” from section 1201(a)(1) and (2).

The Librarian cannot exempt any parties from their duty to comply with other laws, including non-copyright statutes or regulations.

C. Rulemaking Standards

In adopting the DMCA, Congress imposed legal and evidentiary requirements for the section 1201 rulemaking proceeding, as discussed below. The Office recently analyzed the legal and evidentiary standards in its 2017 Section 1201 Report.³²

1. Burden of Proof

Historically, the Office has stated that “[t]hose who seek an exemption from the prohibition on circumvention bear the burden of establishing that the requirements for granting an exemption have been satisfied.”³³ In the Section 1201 Report, the Office clarified that there are “two distinct burdens: the ‘burden of persuasion,’ *i.e.*, which party loses if the evidence is closely balanced, and the ‘burden of production,’ *i.e.*, which party bears the obligation to come forward with evidence at different points in the proceeding.”³⁴ The Office noted that practically speaking,

³² See Section 1201 Report at 105–27.

³³ See 2015 Recommendation at 13.

³⁴ Section 1201 Report at 110 (quoting *Shaffer v. West*, 546 U.S. 49, 56 (2005) (quotation marks and alterations omitted)).

the burden of *production* will effectively be on exemption proponents, simply because they have greater knowledge of and access to evidence demonstrating adverse effects on noninfringing uses. Although the Office has discretion to engage in independent fact-finding and take administrative notice of evidence, the primary way that most evidence supporting an exemption will get into the record will continue to be through the submissions of proponents, who are usually in the best position to provide it.³⁵

As for the burden of *persuasion*, the Register will recommend granting an exemption only “when the preponderance of the evidence in the record shows that the conditions for granting an exemption have been met.”³⁶

Thus, “[i]n sum, it is the totality of the rulemaking record (*i.e.*, the evidence provided by commenters or administratively noticed by the Office) that must, on balance, reflect the need for an exemption by a preponderance of the evidence. Such evidence must, on the whole, show that it is more likely than not that users of a copyrighted work will, in the succeeding three-year period, be adversely affected by the prohibition on circumvention in their ability to make noninfringing uses of a particular class of copyrighted works.”³⁷

2. Defining an Exemption Class

Section 1201(a)(1) specifies that an exemption adopted as part of this rulemaking must be based on “a particular class of works.”³⁸ The starting point for any definition of a “particular class” is the list of categories appearing in section 102 of title 17, such as literary works, musical works, and sound recordings.³⁹ But, as Congress made clear, “the ‘particular class of copyrighted works’ [is intended to] be a *narrow and focused subset* of the broad categories of works . . . identified in section 102 of the Copyright Act.”⁴⁰ For example, while the category of “literary works” under section 102(a)(1) “embraces both prose creations such as journals, periodicals or books, and computer programs of all kinds,” Congress explained that “[i]t is exceedingly unlikely that the impact of the prohibition on circumvention of access control technologies will be the same for

³⁵ *Id.*

³⁶ *Id.* at 111–12; see 2015 Recommendation at 13–14 (accord).

³⁷ Section 1201 Report at 112.

³⁸ 17 U.S.C. § 1201(a)(1)(B).

³⁹ STAFF OF H. COMM. ON THE JUDICIARY, 105TH CONG., SECTION-BY-SECTION ANALYSIS OF H.R. 2281 AS PASSED BY THE UNITED STATES HOUSE OF REPRESENTATIVES ON AUGUST 4, 1998, at 7 (Comm. Print 1998) (“House Manager’s Report”).

⁴⁰ Commerce Comm. Report at 38 (emphasis added).

scientific journals as it is for computer operating systems.”⁴¹ Thus, “these two categories of works, while both ‘literary works,’ do not constitute a single ‘particular class’ for purposes of” section 1201(a)(1).⁴²

At the same time, Congress emphasized that the Librarian “should not draw the boundaries of ‘particular classes’ too narrowly.”⁴³ Thus, while the category of “motion pictures and other audiovisual works” in section 102 “may appropriately be subdivided, for purposes of the rulemaking, into classes such as ‘motion pictures,’ [or] ‘television programs,’” it would be inappropriate “to subdivide overly narrowly into particular genres of motion pictures, such as Westerns, comedies, or live action dramas.”⁴⁴

Determining the appropriate scope of a “class of works” for an exemption may also consider the adverse effects an exemption may have on the market for or value of copyrighted works. For example, the class might be defined in part by reference to the medium on which the works are distributed, or even to the access control measures applied to them. In particular, classes may be refined by reference to the particular type of use and/or user to which the exemption will apply.⁴⁵ In some cases, “the Office’s ability to narrowly define the class is what enable[s] it to recommend the exemption at all.”⁴⁶

In sum, “[d]eciding the scope or boundaries of a ‘particular class’ of copyrighted works as to which the prohibition contained in section 1201(a)(1) has been shown to have had an adverse impact is an important issue” to be determined based upon the law and facts developed in the proceeding.⁴⁷ Accordingly, the Register will look to the specific record before her to assess the proper scope of the class for a proposed exemption.

3. Evidentiary Standards

In considering whether to recommend an exemption, the Register inquires: “*Are users of a copyrighted work adversely affected by the prohibition on circumvention in their ability to make noninfringing uses of a class of copyrighted works, or are users likely to be so adversely affected in the next three years?*”⁴⁸ This test breaks down into several elements.

⁴¹ House Manager’s Report at 7.

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ 2015 Recommendation at 17–18; Section 1201 Report at 26.

⁴⁶ *See* Section 1201 Report at 109.

⁴⁷ House Manager’s Report at 7.

⁴⁸ Section 1201 Report at 114–15; *see* 17 U.S.C. § 1201(a)(1)(C).

a. Copyrightable Works at Issue

The first requirement for an exemption is that the class includes at least some works protected by copyright.⁴⁹ This requirement comes directly from the statute, which refers to a “class of copyrighted works” and provides that the circumvention ban applies only to a TPM that controls access to “a work protected under this title.”⁵⁰

b. Noninfringing Use

The second requirement is that the proposed uses are noninfringing under title 17.⁵¹ Past proceedings have considered a variety of noninfringing bases when evaluating proposed uses, including fair use (section 107), the exceptions for libraries and archives (section 108), and certain adaptations of computer programs (section 117). As the Office has explained:

The Register will look to the Copyright Act and relevant judicial precedents when analyzing whether a proposed use is likely to be noninfringing. The statutory language requires that the use *is or is likely* to be noninfringing, not merely that the use might plausibly be considered noninfringing. As the Register has indicated previously, there is no “rule of doubt” favoring an exemption when it is unclear that a particular use is a fair or otherwise noninfringing use. Thus, [the record] must show more than that a particular use *could* be noninfringing. Rather, the [record] must establish that the proposed use is likely to qualify as noninfringing under relevant law.⁵²

While “this standard does not require ‘controlling precedent directly on point,’” “the rulemaking is not an appropriate venue for breaking new ground in fair use jurisprudence.”⁵³ Proponents must therefore provide sufficient detail so that the proposed uses are cognizable for the Register to evaluate them and determine whether they are likely to be noninfringing under relevant statutory and case law.

c. Causation

The third requirement is that the statutory prohibition on circumventing access controls is the cause of the adverse effects.⁵⁴ “Adverse impacts that flow from other sources, or

⁴⁹ Section 1201 Report at 115; *see* 17 U.S.C. § 1201(a)(1)(A), (a)(1)(C).

⁵⁰ 17 U.S.C. § 1201(a)(1)(A).

⁵¹ Section 1201 Report at 115–17; *see* 17 U.S.C. § 1201(a)(1)(C).

⁵² 2015 Recommendation at 15; *see* Section 1201 Report at 115–16.

⁵³ Section 1201 Report at 116–17 (quoting 2010 Recommendation at 12).

⁵⁴ *Id.* at 115, 117; *see* 17 U.S.C. § 1201(a)(1)(C).

that are not clearly attributable to implementation of a technological protection measure, are outside the scope of the rulemaking.”⁵⁵ For example, adverse effects stemming from “marketplace trends, other technological developments, or changes in the roles of libraries, distributors or other intermediaries” are not cognizable harms under the statute.⁵⁶

d. Adverse Effects and the Statutory Factors

The final requirement is that users are either adversely affected, or are likely to be adversely affected, in their ability to make noninfringing uses during the next three years.⁵⁷ Proponents must show a need for circumvention to avoid any alleged adverse effects. This element is analyzed in reference to section 1201(a)(1)(C)’s statutory factors:

- (i) the availability for use of copyrighted works;
- (ii) the availability for use of works for nonprofit archival, preservation, and educational purposes;
- (iii) the impact that the prohibition on the circumvention of technological measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship, or research;
- (iv) the effect of circumvention of technological measures on the market for or value of copyrighted works; and
- (v) such other factors as the Librarian considers appropriate.⁵⁸

In applying these factors, the Register “balances ‘[t]he harm identified by a proponent of an exemption . . . with the harm that would result from an exemption.’”⁵⁹ Weighing these factors may also require consideration of the benefits that the technological measure brings with respect to the overall creation and dissemination of works in the marketplace, in addition to any negative impact. As Congress explained, “the rulemaking proceedings should consider the positive as well as the adverse effects of these technologies on the availability of copyrighted materials.”⁶⁰

Congress stressed that the “main focus of the rulemaking proceeding” should be on whether a “substantial diminution” of the availability of works for noninfringing uses is

⁵⁵ Commerce Comm. Report at 37; House Manager’s Report at 6 (similar).

⁵⁶ House Manager’s Report at 6.

⁵⁷ Section 1201 Report at 115; *see* 17 U.S.C. § 1201(a)(1)(C).

⁵⁸ 17 U.S.C. § 1201(a)(1)(C); *see* Section 1201 Report at 115, 118.

⁵⁹ Section 1201 Report at 118 (alteration and omission in original) (quoting Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 76 Fed. Reg. 60,398, 60,403 (Sept. 29, 2011)).

⁶⁰ House Manager’s Report at 6.

“*actually occurring*” in the marketplace.⁶¹ To prove the existence of adverse effects, it is necessary to demonstrate “distinct, verifiable and measurable impacts” occurring in the marketplace, as exemptions “should not be based upon *de minimis* impacts.”⁶² Thus, “mere inconveniences” or “individual cases” do not satisfy the rulemaking standard.⁶³

To the extent a proponent relies on claimed future impacts rather than existing impacts, such future adverse impacts must be “likely.”⁶⁴ An exemption may be based upon anticipated, rather than actual, adverse impacts “only in extraordinary circumstances in which the evidence of likelihood of future adverse impact during that time period is highly specific, strong and persuasive.”⁶⁵

In sum, for a finding of adverse effects, the evidence in the record “cannot be hypothetical, theoretical, or speculative, but must be real, tangible, and concrete. Ultimately, the evidence must show that adverse effects are not merely possible, but probable (*i.e.*, more likely than not to be occurring or likely to occur in the next three years).”⁶⁶

D. Streamlined Renewal Process

Following a comprehensive policy study, and in response to stakeholder feedback, for this seventh triennial proceeding, the Copyright Office introduced a streamlined process to renew section 1201 exemptions adopted during the 2015 rulemaking.⁶⁷ Previously, in recognition of legislative history stating that the basis of an exemption should be established *de novo* in each triennial proceeding,⁶⁸ the Office had required the factual record be developed anew in each rulemaking.⁶⁹ In its Section 1201 Report, the Office evaluated the possibility of a renewal process, noting a “broad consensus in favor of streamlining the process for renewing exemptions to which there is no meaningful opposition.”⁷⁰ As described in further detail in that report, the Office ultimately

⁶¹ *Id.*

⁶² Commerce Comm. Report at 37.

⁶³ House Manager’s Report at 6.

⁶⁴ 17 U.S.C. § 1201(a)(1)(B), (C).

⁶⁵ House Manager’s Report at 6.

⁶⁶ Section 1201 Report at 120–21.

⁶⁷ *Id.* at 127–28.

⁶⁸ See Commerce Comm. Report at 37 (explaining that for every rulemaking, “the assessment of adverse impacts on particular categories of works is to be determined *de novo*”).

⁶⁹ Exemptions to Permit Circumvention of Access Controls on Copyrighted Works, 82 Fed. Reg. 29,804, 29,805 (June 30, 2017) (“NOI”).

⁷⁰ Section 1201 Report at vi.

concluded that “the statutory language appears to be broad enough to permit determinations to be based upon evidence drawn from prior proceedings, but only upon a conclusion that this evidence remains reliable to support granting an exemption in the current proceeding.”⁷¹ The Office further concluded that renewal may be sought only for exemptions in their current form, without modification, and that the Register “must apply the same evidentiary standards in recommending the renewal of exemptions as for first-time exemption requests.”⁷²

The Office detailed the renewal process in its notices for this proceeding.⁷³ Streamlined renewal is based upon a determination that, due to a lack of legal, marketplace, or technological changes, the factors that led the Register to recommend adoption of the exemption in the prior rulemaking are expected to continue into the forthcoming triennial period.⁷⁴ That is, the same material facts and circumstances underlying the previously-adopted regulatory exemption may be relied on to renew the exemption.⁷⁵ Because the statute itself requires that exemptions must be adopted upon a fresh determination concerning the next three-year period, the fact that the Librarian previously adopted an exemption creates no presumption that readoption is appropriate. Instead, the Office first solicited petitions summarizing the basis for claiming a continuing need and justification for the exemption, and petitioners signed a declaration stating that, to the best of their personal knowledge, there had not been any material change in the facts, law, or other circumstances set forth in the prior rulemaking record such that renewal of the exemption would not be justified.⁷⁶

Next, the Office solicited comments from participants opposing the readoption of the exemption. Opponents were required to provide evidence that would allow the Acting Register to reasonably conclude that the prior rulemaking record and any further information provided in the petitions are insufficient for her to recommend renewal without the benefit of a further developed record. For example, a change in case law might affect whether a particular use is noninfringing, new technological developments might affect the availability for use of copyrighted works, or new business models might

⁷¹ *Id.* at 143.

⁷² *Id.* at 142, 145.

⁷³ NOI at 29,805–07; Exemptions to Permit Circumvention of Access Controls on Copyrighted Works, 82 Fed. Reg. 49,550, 49,552 (Oct. 26, 2017) (“NPRM”).

⁷⁴ NOI at 29,806; NPRM at 49,552.

⁷⁵ Section 1201 Report at 143–44; NOI at 29,806; NPRM at 49,552.

⁷⁶ NPRM at 49,552.

affect the market for or value of copyrighted works.⁷⁷ If the appropriateness of renewing an exemption was meaningfully contested by requiring a material change in the relevant law or facts—as detailed below, none were—that exemption would have been automatically treated as a petition for a new exemption instead. That is, it would be fully noticed for written comment and public hearing to generate an updated administrative record for the Register to evaluate whether to recommend re-adoption, modification, or elimination of that exemption to the Librarian.⁷⁸

Separately, as in prior rulemakings, the Office solicited petitions proposing that the Acting Register recommend new exemptions for activities not included in the 2015 final rule. Petitions seeking to expand upon a current exemption to include activities that were not included in the 2015 rulemaking were considered as petitions for new exemptions, since a sufficient administrative record had not yet been created to consider such additional activities.⁷⁹ In considering requests to expand exemptions, however, the Acting Register will consider the relevance, if any, of the prior administrative record where it has been established that there have been no material changes in the facts or law. For example, the enduring presence of TPMs on some models of 3D printers was established through the streamlined renewal process for the 2015 3D printing exemption, and need not be independently demonstrated when considering whether to modify that regulatory language to permit a broader range of activities, in connection with Class 12 below.

The streamlined process elicited favorable responses during the 2018 rulemaking hearings.⁸⁰ As detailed below, as a result of this new process, the Acting Register was able to recommend renewal of all exemptions adopted in the 2015 rulemaking, and subsequently consider whether some of them should be modified to accommodate additional new uses through the development of an expanded administrative record.

⁷⁷ See Tr. at 200:19–201:10 (May 19, 2016) (Sheffner, MPAA). Transcripts of the hearings are available at <https://www.copyright.gov/1201/2018/hearing-transcripts/>. Exhibits introduced at the hearings are available at <https://www.copyright.gov/1201/2018/exhibits-043018/>.

⁷⁸ See NPRM at 49,554 (stating that if a renewal petition is meaningfully opposed, “the exemption would be considered pursuant to the more comprehensive rulemaking process (*i.e.*, three rounds of written comment, followed by public hearings”).

⁷⁹ NOI at 29,806.

⁸⁰ See, e.g., Tr. at 7:08–13 (Apr. 13, 2018) (Weinberg) (“I really appreciate the structure of this process this time around.”); Tr. at 5:24–6:05 (Apr. 12, 2018) (Reid, ATSP) (“The work that you did to do the streamline process that avoided us having to rebuild the record from scratch. That was a major reduction in burden on some organizations that needed it.”).

III. History of Seventh Triennial Proceeding

In this rulemaking, the Copyright Office used the phased comment structure introduced in the last proceeding, to best facilitate a clear and thorough record. As promised in its Section 1201 Report,⁸¹ the Office also created video tutorials explaining the rulemaking process, issued the NPRM earlier to give parties more time to participate, and offered increased opportunities for participant input, including through an established procedure for transparent *ex parte* meetings.

The Office initiated the seventh triennial rulemaking proceeding through a NOI on June 30, 2017,⁸² two and a half months earlier than in the sixth rulemaking to better accommodate participation by student legal clinics. The NOI requested petitions for renewals, petitions in opposition to renewal, and any petitions for new exemptions. In response, the Office received thirty-nine renewal petitions, five comments regarding the scope of the renewal petitions, and one comment in opposition to renewal of a current exemption.⁸³ The Office also received twenty-three petitions for new exemptions, including seventeen seeking to expand certain current exemptions, and six petitions for new exemptions.

On October 26, 2017, the Office issued its NPRM identifying the existing exemptions for which the Acting Register intended to recommend renewal, and outlined the proposed classes for new exemptions (including proposed expansions of previously-adopted exemptions), for which three rounds of public comments were initiated.⁸⁴ Those classes were organized into twelve classes of works. Seven of the twelve proposed exemptions seek expansions of existing exemptions, while five propose new exemptions. The Office received 181 total submissions in response to the NPRM, substantially fewer than the approximately 40,000 submissions received in the last rulemaking.

After analyzing the written comments, the Office included seven days of hearings in Washington, D.C. (April 10–13) and Los Angeles, California (April 23–25). For the first time, the roundtables at both locations held audience participation panels and were live streamed online. Video recordings for these roundtables are available through the Office’s website and YouTube pages.⁸⁵ In total, the Office heard testimony from seventy-

⁸¹ Section 1201 Report at 149–51.

⁸² NOI at 29,804.

⁸³ The submissions received in response to the NOI are available at <https://www.copyright.gov/1201/2018/>. References to these submissions are by party name (abbreviated where appropriate) followed by either “Renewal Pet.,” class number and “Pet.,” or “Renewal Comment,” as applicable.

⁸⁴ NPRM at 49,550.

⁸⁵ See <https://www.copyright.gov/1201/2018/> and <https://www.youtube.com/uscopyrightoffice/>.

seven individuals. After the hearings, the Office issued questions to hearing participants in four proposed classes and received eighteen responses.⁸⁶ Subsequently, the Office received an unsolicited letter from CCIPS regarding proposed Class 10, and the Office solicited comments from Class 10 participants in response.⁸⁷

As noted in its NPRM, the Office determined that further informal communications with non-governmental participants might be beneficial in limited circumstances.⁸⁸ The Office thus established guidelines for *ex parte* meetings, noting that the Office will not consider or accept any new documentary materials at these meetings, and requiring participants to provide a letter summarizing the meeting for the Office to include in the rulemaking record.⁸⁹ The Office held nine *ex parte* meetings with participants concerning five proposed classes.⁹⁰

As required by section 1201(a)(1), the Acting Register consulted with NTIA during this rulemaking. NTIA provided input at various stages and participated in the public hearings held in Washington, D.C. and Los Angeles. NTIA formally communicated its views on each of the proposed exemptions to the Acting Register on September 25, 2018. The Office addresses NTIA's substantive views on the proposed classes below.

⁸⁶ Participants' post-hearing letter responses are available at <https://www.copyright.gov/1201/2018/post-hearing/answers/>.

⁸⁷ Letter from John T. Lynch, Jr., Chief, Computer Crime & Intellectual Property Section, Criminal Division, U.S. Department of Justice, to Regan A. Smith, General Counsel & Associate Register of Copyrights, U.S. Copyright Office (June 28, 2018), https://www.copyright.gov/1201/2018/USCO-letters/USDOJ_Letter_to_USCO.pdf ("CCIPS Letter").

⁸⁸ NPRM at 49,563; *see* Section 1201 Report at 150–51 (documenting stakeholder desire for such a process).

⁸⁹ NPRM at 49,563.

⁹⁰ *See* U.S. Copyright Office, *Ex Parte Communications* (last visited Sept. 27, 2018), <https://www.copyright.gov/1201/2018/ex-parte-communications.html>.

IV. Renewal Recommendations

As set forth in the NPRM, the Acting Register received petitions to renew every one of the exemptions adopted pursuant to the sixth triennial rulemaking. To the extent any renewal petition proposed uses beyond the current exemption, the Office disregarded those portions of the petition for purposes of considering the renewal of the exemption, and instead focused on whether it provided sufficient information to warrant readoption of the exemption in its current form.⁹¹ While a single party filed an opposition to renewal of one existing exemption, the Acting Register concluded that its opposition was not sufficiently meaningful to undermine the conclusion that the record and legal reasoning from the prior rulemaking supported renewal.⁹²

The Acting Register now finalizes the NPRM's proposal to recommend renewal of these exemptions based on the information provided in the renewal petitions and the lack of opposition, which demonstrated that the conditions that led to adoption of the exemptions are likely to continue during the next triennial period. The existing exemptions, and the bases for the recommendation to readopt each exemption in accordance with the streamlined renewal process, are briefly summarized below. Where noted, these exemptions serve as a baseline in considering subsequent requests for expansion. The recommended regulatory language for all exemptions in this rulemaking (including "straight renewals," expanded exemptions, and wholly new exemptions, is set forth in the Appendix.

Literary works distributed electronically – assistive technologies. Multiple organizations petitioned to renew the exemption for literary works distributed electronically (*i.e.*, e-books), for use with assistive technologies for persons who are blind, visually impaired, or have print disabilities.⁹³ No oppositions were filed against readoption of this exemption. The petitions demonstrated the continuing need and justification for the exemption, stating that individuals who are blind, visually impaired, or print disabled are significantly disadvantaged with respect to obtaining accessible e-book content because TPMs interfere with the use of assistive technologies such as screen readers and refreshable Braille displays.⁹⁴ In addition, the petitioners demonstrated personal

⁹¹ See, e.g., NPRM at 49,554.

⁹² *Id.* at 49,554; see also NOI at 29,807 (describing "meaningful opposition" standard).

⁹³ Am. Found. for the Blind ("AFB"), Am. Council of the Blind ("ACB"), Samuelson-Glushko Tech. Law & Policy Clinic at Colo. Law ("Samuelson-Glushko TLPC") & Lib. Copyright Alliance ("LCA") Renewal Pet.; Univ. of Mich. Lib. Copyright Office ("UMLCO") eBooks Renewal Pet.; see 37 C.F.R. § 201.40(b)(2) (2016).

⁹⁴ AFB, ACB, Samuelson-Glushko TLPC & LCA eBooks Renewal Pet. at 3; UMLCO eBooks Renewal Pet. at 3.

knowledge and experience with regard to the assistive technology exemption; they are all organizations that advocate for the blind, visually impaired, and print disabled.⁹⁵

Literary works – compilations of data generated by implanted medical devices – to access personal data. Hugo Campos, a member of the Coalition of Medical Device Patients and Researchers, petitioned to renew the exemption covering access to patient data on networked medical devices.⁹⁶ No oppositions were filed against the petition to renew this exemption. Mr. Campos’s petition demonstrated the continuing need and justification for the exemption, stating that patients continue to need access to data output from their medical devices to manage their health.⁹⁷ Mr. Campos demonstrated personal knowledge and experience with regard to this exemption, as he is a patient needing access to the data output from his medical device, and is a member of the Coalition of Medical Device Patients and Researchers, a coalition whose members research, comment on, and examine the effectiveness of networked medical devices.⁹⁸

Computer programs – “unlocking” of cellphones, tablets, mobile hotspots, or wearable devices. Multiple organizations petitioned to renew the exemption for computer programs that operate cellphones, tablets, mobile hotspots, or wearable devices (e.g., smartwatches), to allow connection of a used device to an alternative wireless network (“unlocking”).⁹⁹ No oppositions were filed against renewal of this exemption. The petitions demonstrate the continuing need and justification for the exemption, stating that consumers of the enumerated products continue to need to be able to unlock the devices so they can switch network providers. For example, the Institute of Scrap Recycling Industries, Inc. (“ISRI”) stated that its members continue to purchase or acquire donated cell phones and tablets, and try to reuse them, but that wireless carriers still lock devices to prevent them from being used on other carriers.¹⁰⁰ In addition, the petitioners demonstrated personal knowledge and experience with regard to this exemption: CCA, Owners’ Rights Initiative (“ORI”), and ISRI represent companies that rely on the ability to unlock cellphones. A number of the petitioners also participated in past section 1201 triennial rulemakings relating to unlocking lawfully-acquired wireless devices.

This existing exemption serves as the baseline in assessing whether to recommend any expansions in Class 5.

⁹⁵ See AFB, ACB, Samuelson-Glushko TLPC & LCA eBooks Renewal Pet. at 1; UMLCO eBooks Renewal Pet. at 3.

⁹⁶ Campos Compilations of Data Renewal Pet.; see 37 C.F.R. § 201.40(b)(10) (2016).

⁹⁷ Campos Compilations of Data Renewal Pet. at 3.

⁹⁸ *Id.* at 3.

⁹⁹ See Competitive Carriers Ass’n Unlocking Renewal Pet.; Consumers Union Unlocking Renewal Pet.; ISRI Unlocking Renewal Pet.; ORI Unlocking Renewal Pet.; see 37 C.F.R. § 201.40(b)(3) (2016).

¹⁰⁰ ISRI Unlocking Renewal Pet. at 3.

Computer programs – “jailbreaking” of smartphones, smart TVs, tablets, or other all-purpose mobile computing devices. Multiple organizations petitioned to renew the exemptions for computer programs that operate smartphones, smart TVs, tablets, or other all-purpose mobile computing devices, to allow the device to interoperate with or to remove software applications (“jailbreaking”).¹⁰¹ The petitions demonstrate the continuing need and justification for the exemption, and that petitioners had personal knowledge and experience with regard to this exemption. Specifically, the petitions state that, absent an exemption, TPMs applied to the enumerated products would have an adverse effect on noninfringing uses, such as being able to install third-party applications on a smartphone or download third-party software on a smart TV to enable interoperability.¹⁰² For example, the Electronic Frontier Foundation’s (“EFF’s”) petition outlined its declarant’s experience searching current mobile computing device markets and technologies, working as a software engineer, and participating in four prior section 1201 rulemakings.¹⁰³ Similarly, the Libiquity petition was submitted by a person who “work[s] with the operating system and many of the system libraries that lie at the core of the firmware systems of a large majority of smartphones, portable all-purpose mobile computing devices, and smart televisions.”¹⁰⁴ In a brief two-page comment, BSA | The Software Alliance (“BSA”) opposed the readoption of this exemption, stating that “alternatives to circumvention exist,” and that “jailbreaking can undermine the integrity and security of a platform’s operating system in a manner than facilitates copyright infringement and exposes users to heightened risks of privacy violations.”¹⁰⁵

In the NPRM, the Office concluded that BSA’s opposition was not sufficient to draw the conclusion that the past rulemaking record is no longer reliable, or that the reasoning adopted in the Register’s 2015 Recommendation cannot be relied upon for the next three-year period.¹⁰⁶ Specifically, the Office stated that BSA’s comment largely re-articulated a general opposition to a jailbreaking exemption, and noted that the past three rulemakings have adopted some form of an exemption for jailbreaking certain types of mobile computing devices.¹⁰⁷ The Office also found that BSA had failed to

¹⁰¹ EFF Jailbreaking Renewal Pet.; Libiquity Jailbreaking Renewal Pet.; New Media Rights (“NMR”) Jailbreaking Renewal Pet.; Software Freedom Conservancy (“SFC”) Jailbreaking Renewal Pet.; *see* 37 C.F.R. § 201.40(b)(4)–(5) (2016).

¹⁰² EFF Jailbreaking Renewal Pet. at 3–4; Libiquity Jailbreaking Renewal Pet. at 3, 5; NMR Jailbreaking Renewal Pet. at 3, 5; SFC Jailbreaking Renewal Pet. at 3, 5.

¹⁰³ EFF Jailbreaking Renewal Pet. at 3.

¹⁰⁴ Libiquity Jailbreaking Renewal Pet. at 3.

¹⁰⁵ BSA Jailbreaking Renewal Comment at 1–2.

¹⁰⁶ NPRM at 49,554 (citing NOI at 29,807).

¹⁰⁷ *Id.* (citing Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. 65,944, 65,952–53 (Oct. 28, 2015) (“2015 Final Rule”));

identify any specific circumvention alternatives, changes in case law, new technological developments, or new issues that had not already been considered and evaluated in granting the exemption previously.¹⁰⁸

This existing exemption¹⁰⁹ serves as the baseline in assessing whether to recommend an expansion in Class 6.

Computer programs – diagnosis, repair, and lawful modification of motorized land vehicles. Multiple organizations petitioned to renew the exemption for computer programs that control motorized land vehicles, including farm equipment, for purposes of diagnosis, repair, and modification of the vehicle.¹¹⁰ The petitions demonstrated the continuing need and justification for the exemption to prevent owners of motorized land vehicles from being adversely impacted in their ability to diagnose, repair, and modify their vehicles as a result of TPMs that protect the copyrighted computer programs on the electronic control units (“ECUs”) that control the functioning of the vehicles. For example, the Auto Care Association (“Auto Care”), Consumer Technology Association (“CTA”), iFixit, and ORI stated that “approximately 20 percent of American consumers buy automotive parts and products to maintain and repair their own vehicles.”¹¹¹ American Farm Bureau Federation similarly remarked that many agricultural vehicles are now “equipped with computers that monitor and control vehicle function,” and many agricultural equipment manufacturers have adopted TPMs that restrict access to such computer software.¹¹² Indeed, the Motor & Equipment Manufacturers Association (“MEMA”), which during the sixth triennial rulemaking initially opposed any exemption that would impact the software and TPMs in vehicles, now supports the exemption as striking “an appropriate balance between encouraging marketplace competition and innovation while mitigating the impact on safety, regulatory, and

Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 77 Fed. Reg. 65,260, 65,263–64 (Oct. 26, 2012) (“2012 Final Rule”); Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 75 Fed. Reg. 43,825, 43,828–30 (July 27, 2010)).

¹⁰⁸ NPRM at 49,554.

¹⁰⁹ After the Acting Register delivered her Recommendation to the Librarian on October 5, 2018, the Federal Register provided the Office with non-substantive corrections to the regulatory text to ensure compliance with the Code of Federal Regulations’ formatting requirements. The regulatory text provided in this Recommendation has been updated to reflect those edits.

¹¹⁰ Auto Care, CTA, iFixit & ORI Repair Renewal Pet.; Am. Farm Bureau Fed’n (“AFBF”) Repair Renewal Pet.; EFF Repair Renewal Pet.; MEMA Repair Renewal Pet.; Intellectual Prop. & Tech. Law Clinic, Univ. of S. Cal. Repair Renewal Pet.; see 37 C.F.R. § 201.40(b)(6) (2016).

¹¹¹ Auto Care, CTA, iFixit & ORI Repair Renewal Pet. at 3.

¹¹² AFBF Renewal Pet. at 3.

environmental compliance.”¹¹³ The petitioners demonstrated personal knowledge and experience with regard to this exemption; each either represents or gathered information from individuals conducting repairs or businesses that manufacture, distribute, and sell motor vehicle parts, and perform vehicle service and repair.

This existing exemption serves as the baseline in assessing whether to recommend any expansions in Class 7.

Computer programs – security research. Multiple organizations and security researchers petitioned to renew the exemption for purposes of good-faith security research.¹¹⁴ The petitioners demonstrated the continuing need and justification for the exemption, and personal knowledge and experience with regard to this exemption. For example, Professors Bellovin, Blaze, and Heninger stated that they have conducted their own security research in reliance on the existing exemption, and that they “regularly engage” with other security researchers who have similarly relied on the exemption.¹¹⁵ They provided an example of a recent computer security conference in which thousands of participants relied on the existing exemption to examine and test electronic voting devices—the results of which were reported to election officials to improve the security of their voting systems.¹¹⁶

This existing exemption serves as the baseline in assessing whether to recommend any expansions in Class 10.

Computer programs – 3D printers. Michael Weinberg and ORI jointly petitioned to renew the exemption for computer programs that operate 3D printers to allow use of alternative feedstock.¹¹⁷ No oppositions were filed against readoption of this exemption. The petition demonstrated the continuing need and justification for the exemption, and the petitioner demonstrated personal knowledge and experience. Specifically, Mr. Weinberg petitioned for the existing exemption and “continued to participate in the review of that exemption . . . in his personal capacity.”¹¹⁸ In addition, the petition states

¹¹³ MEMA Repair Renewal Pet. at 3.

¹¹⁴ Bellovin, Blaze & Heninger (collectively, “Joint Security Researchers”) Security Research Renewal Pet.; Campos Security Research Renewal Pet.; Ctr. for Democracy & Tech. (“CDT”) Security Research Renewal Pet.; Felten, Halderman & ORI Security Research Renewal Pet.; Libiquity Security Research Renewal Pet.; see 37 C.F.R. § 201.40(b)(7) (2016).

¹¹⁵ Joint Security Researchers Security Research Renewal Pet. at 3.

¹¹⁶ *Id.*

¹¹⁷ Weinberg & ORI 3D Printers Renewal Pet.; see 37 C.F.R. § 201.40(b)(9).

¹¹⁸ Weinberg & ORI 3D Printers Renewal Pet. at 3.

that printers continue to restrict the use of third-party feedstock, thereby requiring renewal of the exemption.¹¹⁹

This existing exemption serves as the baseline in assessing whether to recommend any expansions in Class 12.

Video games requiring server communication – for continued individual play and preservation of games by libraries, archives, and museums. Multiple organizations petitioned to renew the exemption for video games for which outside server support has been discontinued.¹²⁰ The petitions stated that libraries and museums continue to need the exemption to preserve and curate video games in playable form.¹²¹ In addition, the petitioners demonstrated personal knowledge and experience with regard to this exemption through past participation in the section 1201 triennial rulemaking relating to access controls on video games and consoles, and/or representing major library associations with members that have relied on this exemption.

This existing exemption serves as the baseline in assessing whether to recommend any expansions in Class 8.

Audiovisual works – educational and derivative uses. Multiple individuals and organizations petitioned to renew an exemption containing multiple subparts covering use of short portions of motion pictures for various educational and derivative uses.¹²² No oppositions were filed. Petitions to renew the various subparts of the exemption are discussed below. The existing exemption and its various subparts collectively serve as the baseline in assessing whether to recommend any expansions in Class 1.

Audiovisual uses – educational uses – colleges and universities. Multiple individuals and organizations petitioned to renew the exemption’s subpart covering use of motion pictures for educational uses by college and university instructors and students.¹²³ No oppositions were filed against readoption. The petitions demonstrated the continuing

¹¹⁹ *Id.*

¹²⁰ EFF Video Game Renewal Pet.; LCA Video Game Renewal Pet.; UMLCO Video Game Renewal Pet.; *see* 37 C.F.R. § 201.40(b)(8).

¹²¹ *See* UMLCO Video Game Renewal Pet. at 3.

¹²² *See* 37 C.F.R. § 201.40(b)(1). In the 2015 rulemaking, this recommended regulatory language was the result of consideration of seven proposed classes of works. *See* 2015 Recommendation at 24–28.

¹²³ Decherney, Sender, Carpini, ICA, Dep’t of Commc’n Studies at the Univ. of Mich. (“DCSUM”), Soc’y for Cinema & Media Studies (“SCMS”) (collectively, “Joint Educators”) AV Univ. Renewal Pet.; AAUP & LCA AV Univ. Renewal Pet.; Hobbs & Nat’l Ass’n for Media Literary Educ. (“NAMLE”) AV Univ. Renewal Pet.; UMLCO AV Univ. Renewal Pet.; *see* 37 C.F.R. § 201.40(b)(1)(iv).

need and justification for the exemption, and personal knowledge and experience with regard to the exempted use. For example, Joint Educators, the American Association of University Professors (“AAUP”), and LCA stated that courses on video essays (or multimedia or videographer criticism), now taught at many universities, would not be able to exist without relying on this exemption.¹²⁴ Without this exemption, Joint Educators, AAUP, and LCA assert that educators would be “unable to provide an enriching and accurate description and analysis of cinematic or other audiovisual works when prevented from accessing such works due to TPM[s]”¹²⁵—and their declarant, Professor Decherney, has personally relied upon this exemption to teach a course on multimedia criticism.¹²⁶ Similarly, Professor Hobbs, who represents more than 17,000 digital and media literacy educators, and NAMLE, an organization devoted to media literacy with more than 3,500 members, stated that “sometimes teachers must circumvent a DVD protected by the Content Scramble System when screen-capture software or other non-circumventing alternatives are unable to produce the required level of high-quality content.”¹²⁷

Audiovisual works – educational uses – primary and secondary schools (K-12). Multiple organizations petitioned to renew the exemption’s subparts covering use of motion picture clips for educational uses by K-12 instructors and students.¹²⁸ No oppositions were filed against readoption. The petitions demonstrated the continuing need and justification for the exemption, stating that K-12 instructors and students continue to rely on excerpts from digital media for class presentations and coursework, and must sometimes use screen-capture technology.¹²⁹ In addition, the petitioners demonstrated personal knowledge and experience with regard to the exempted use through representation of thousands of digital and literacy educators and/or members supporting K-12 instructors and students, combined with past participation in the section 1201 rulemaking.¹³⁰

Audiovisual works – educational uses – massive open online courses (“MOOCs”). Joint Educators, SCMS, and LCA petitioned to renew the exemption’s subpart covering use of motion picture clips for educational uses in MOOCs.¹³¹ No oppositions were filed

¹²⁴ Joint Educators, AAUP & LCA AV Univ. Renewal Pet. at 3.

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ Hobbs & NAMLE AV Univ. Renewal Pet. at 3.

¹²⁸ LCA AV K-12 Renewal Pet.; Hobbs & NAMLE AV K-12 Renewal Pet.; *see* 37 C.F.R. § 201.40(b)(1)(vi).

¹²⁹ LCA AV K-12 Renewal Pet. at 3; Hobbs & NAMLE AV K-12 Renewal Pet. at 3.

¹³⁰ LCA AV K-12 Renewal Pet. at 3; Hobbs & NAMLE AV K-12 Renewal Pet. at 3.

¹³¹ Joint Educators & LCA MOOCs Renewal Pet.; *see* 37 C.F.R. § 201.40(b)(1)(v).

against readoption. The petition demonstrated the continuing need and justification for the exemption, stating that instructors continue to rely on the exemption to develop, provide, and improve MOOCs, as well as increase the number of (and therefore access to) MOOCs in the field of film and media studies.¹³² In addition, declarant Professor Decherney, demonstrated personal knowledge by describing his reliance on the exemption to teach MOOCs on film and media studies, as well as his past participation in the section 1201 rulemaking, along with other petitioners.¹³³

Audiovisual works – educational uses – educational programs operated by libraries, museums, and other nonprofits. Multiple organizations petitioned to renew the exemption’s subpart covering use of motion picture clips for educational uses in digital and literacy programs offered by libraries, museums, and other nonprofits.¹³⁴ No oppositions were filed against readoption. The petitions demonstrated the continuing need and justification for the exemption, and demonstrated personal knowledge and experience with regard to the exempted use. For example, LCA stated that librarians across the country have relied on the current exemption and will continue to do so for their digital and literacy programs.¹³⁵ In addition, Professor Hobbs and NAMLE stated that librarians will continue to rely on this exemption for their digital and literacy programs and to advance the digital media knowledge of their patrons.¹³⁶

Audiovisual works – derivative uses – multimedia e-books offering film analysis. A professor and two organizations collectively petitioned to renew the subpart of the exemption covering the use of motion picture clips for multimedia e-books offering film analysis.¹³⁷ No oppositions were filed against readoption. The petition demonstrated the continuing need and justification for the exemption, attesting that the availability of video necessary for authors to undertake film analysis in e-books continues to be “limited to formats encumbered by technological protection measures.”¹³⁸ In addition, the petitioners demonstrated personal knowledge through Professor Buster’s continued work on an e-book series based on her lecture series, “Deconstructing Master Filmmakers: The Uses of Cinematic Enchantment,” and Authors Alliance’s feedback that its members continue to desire authoring e-books that incorporate film for the purpose of analysis.¹³⁹

¹³² Joint Educators & LCA AV MOOCs Renewal Pet. at 3.

¹³³ *Id.*

¹³⁴ LCA AV Nonprofit Renewal Pet.; Hobbs & NAMLE AV Nonprofit Renewal Pet.; see 37 C.F.R. § 201.40(b)(1)(viii).

¹³⁵ LCA AV Nonprofit Renewal Pet. at 3.

¹³⁶ Hobbs & NAMLE AV Nonprofit Renewal Pet. at 3.

¹³⁷ Buster, Authors All. & AAUP AV eBooks Renewal Pet.; see 37 C.F.R. § 201.40(b)(1)(iii).

¹³⁸ Buster, Authors All. & AAUP AV eBooks Renewal Pet. at 3.

¹³⁹ See *id.*

Audiovisual works – derivative uses – documentary filmmaking. Multiple organizations petitioned to renew the subpart of the exemption covering the use of motion picture clips for uses in documentary films.¹⁴⁰ No oppositions were filed against re-adoption. The petitions summarized the continuing need and justification for the exemption, and the petitioners demonstrated personal knowledge and experience with regard to the exempted use. For example, Film Independent (“FI”), the International Documentary Association (“IDA”), Kartemquin Educational Films, Inc. (“KEF”), Center for Independent Documentary (“CID”), and Women in Film and Video (“WIFV”)—which represent thousands of independent filmmakers across the nation—stated that TPMs such as encryption continue to prevent filmmakers from accessing needed material, and that this is “especially true for the kind of high definition motion picture material filmmakers need to satisfy both distributors and viewers.”¹⁴¹ In addition, FI, IDA, and KEF have participated in multiple triennial rulemakings. Petitioners state that they personally know many filmmakers who have found it necessary to rely on this exemption, and will continue to do so.¹⁴²

Audiovisual works – derivative uses – noncommercial remix videos. Two organizations petitioned to renew the subpart of the exemption covering the use of motion picture clips for uses in noncommercial videos.¹⁴³ No oppositions were filed against re-adoption. The petitions demonstrated the continuing need and justification for the exemption and personal knowledge and experience with regard to the exempted use. For example, the Organization for Transformative Works (“OTW”) has advocated for the noncommercial video exemption in past triennial rulemakings, and has heard from “a number of noncommercial remix artists” who have used the exemption and anticipate needing to use it in the future.¹⁴⁴ Similarly, NMR stated that it has spoken to a number of noncommercial video creators who have relied on this exemption, and intend to do so in the future.¹⁴⁵

¹⁴⁰ FI, IDA, KEF, CID & WIFV AV Documentary Renewal Pet.; NMR AV Documentary Renewal Pet.; see 37 C.F.R. § 201.40(b)(1)(i).

¹⁴¹ FI, IDA, KEF, CID & WIFV AV Documentary Renewal Pet. at 3.

¹⁴² *Id.*; NMR AV Documentary Renewal Pet. at 3.

¹⁴³ NMR AV Noncommercial Videos Renewal Pet.; OTW AV Noncommercial Videos Renewal Pet.; see 37 C.F.R. § 201.40(b)(1)(ii).

¹⁴⁴ OTW Renewal Pet. at 3.

¹⁴⁵ NMR AV Noncommercial Videos Renewal Pet. at 3.

V. Discussion of New Proposed Classes

A. Proposed Class 1: Audiovisual Works—Criticism and Comment

1. Background

a. Summary of Proposed Exemption

Five petitions seek expansion of an existing exemption allowing circumvention of access controls protecting excerpts of motion pictures on DVDs, Blu-Ray discs, and digitally transmitted video. The current exemption, codified at 37 C.F.R. § 201.40(b)(1) (2016), permits circumvention for purposes of comment and criticism by various users, including college and university faculty and students, kindergarten through twelfth grade educators, faculty of MOOCs, filmmakers, and multimedia e-book authors. Because the new proposals raise some shared concerns, including the impact of TPMs on the alleged noninfringing uses of motion pictures and whether alternative methods of accessing the content could alleviate potential adverse impacts, the Office grouped these petitions into one class. This approach also accounts for a joint petition, which proposes an “overarching exemption that would embrace multiple audiovisual classes”¹⁴⁶ and collapse (essentially) all of the subparts for the existing exemption to eliminate limitations on the types of user or use—and instead allow circumvention so long as the purpose is for criticism and comment.

i. *Single Overarching Exemption for Purposes of Comment and Criticism*

EFF, NMR, and OTW propose permitting circumvention to make use of motion picture excerpts so long as the purpose is for criticism and comment. The petition includes the following suggested language:

Motion Pictures (including television shows and videos), as defined in 17 U.S.C. 101, where circumvention is undertaken solely in order to make use of short portions of the works for the purpose of criticism or comment, where the motion picture is lawfully made and acquired on a DVD protected by the Content Scrambling System, on a BluRay disc protected by the Advanced Access Content System, via a digital transmission protected by a technological measure, or a similar technological protection measure intended to control access to a work, where the person engaging in circumvention reasonably believes that

¹⁴⁶ EFF, NMR & OTW Class 1 Initial at 3.

non-circumventing alternatives are unable to produce the required level of high-quality source material.¹⁴⁷

The National Association of Criminal Defense Lawyers (“NACDL”), BYU, FI, IDA and KEF filed comments supporting EFF, NMR, and OTW’s proposal.¹⁴⁸ This petition was opposed by Joint Creators II, DVD Copy Control Association (“DVD CCA”), and the Advanced Access Content System Licensing Administrator (“AACCS LA”), who also opposed the remaining proposals to expand this exemption.¹⁴⁹

ii. Universities and K-12 Educational Institutions

As noted above, the 2015 rulemaking resulted in the adoption of exceptions in the existing exemption to permit the circumvention of access controls protecting excerpts of motion pictures on DVDs, Blu-Ray discs, and digitally transmitted video by educators and students for purposes of comment and criticism under varying conditions.¹⁵⁰ BYU filed a petition to consolidate and expand this language and create a single exemption that would permit circumvention for nonprofit educational purposes in accordance with sections 110(1) and 110(2), and eliminate distinctions based on the user, the “criticism and comment” limitation, and references to screen-capture technology.¹⁵¹ BYU proposes the following language:

Motion Pictures (including television shows and videos), as defined in 17 U.S.C. § 101, where circumvention is undertaken solely in order to facilitate noninfringing performances of the works for nonprofit educational purposes, in accordance with 17 U.S.C. § 110(1) or § 110(2).¹⁵²

iii. Massively Open Online Courses (“MOOCs”)

Professors Decherney, Sender, and Carpini, the Department of Communications at the University of Michigan, the International Communication Association, and the Society for Cinema and Media Studies (collectively, “Joint Educators”) request an expansion to allow faculty of MOOCs¹⁵³ to circumvent for “all online educational offerings” by removing certain TEACH Act restrictions referenced in the existing exemption.¹⁵⁴

¹⁴⁷ *Id.* at 2.

¹⁴⁸ BYU Class 1 Initial at 2; FI, IDA & KEF Class 1 Initial at 3; NACDL Class 1 Initial at 2.

¹⁴⁹ See AACCS LA Class 1 Opp’n; DVD CCA Class 1 Opp’n; Joint Creators II Class 1 Opp’n.

¹⁵⁰ 37 C.F.R. § 201.40(b)(1)(iv), (vi)–(viii) (2016).

¹⁵¹ BYU Class 1 Initial at 2.

¹⁵² *Id.*

¹⁵³ 37 C.F.R. § 201.40(b)(1)(v) (2016).

¹⁵⁴ Joint Educators Class 1 Initial at 3.

Although Joint Educators' written comments request elimination of *all* references to the TEACH Act, their representative made clear during the hearing that they primarily are seeking expansion to MOOCs offered by unaccredited and for-profit educational institutions.¹⁵⁵ Accordingly, the proposed expansion would retain other existing references to section 110(2) limitations, such as the obligation to limit transmissions to officially enrolled students and to institute copyright policies and apply TPMs that reasonably prevent unauthorized further dissemination of a work to others.

iv. Filmmaking

FI, IDA, KEF, the Independent Filmmaker Project, the University of Film and Video Association, and the Alliance for Media Arts + Culture (collectively, "Joint Filmmakers") seek expansion of the current exemption to permit circumvention for use of motion picture clips in all types of films (*i.e.*, remove the "documentary" limitation).¹⁵⁶ Joint Filmmakers also propose removing the requirement that "the person engaging in circumvention reasonably believes that screen-capture software or other non-circumventing alternatives are unable to produce the required level of high-quality content."¹⁵⁷ They propose the following language:

Motion pictures (including television shows and videos), as defined in 17 U.S.C. 101, where circumvention is undertaken solely in order to make use of short portions of the motion pictures for the purpose of criticism or comment for use in filmmaking, where the motion picture is lawfully made and acquired on a DVD protected by the Content Scramble System, on a Blu-ray disc protected by the Advanced Access Content System, or via a digital transmission protected by a technological measure.¹⁵⁸

v. Multimedia E-Books

Authors Alliance, AAUP, the Organization for Transformative Works, the Interactive Fiction Technology Foundation, and Professor Buster (collectively, "Authors Alliance et al.") seek expansion of the current exemption to permit circumvention for use of motion picture clips in fiction multimedia e-books and nonfiction multimedia e-books beyond those offering film analysis.¹⁵⁹ Specifically, they propose removing the nonfiction

¹⁵⁵ Tr. at 283:15–21 (Apr. 11, 2018) (Decherney, Joint Educators) ("[W]e haven't asked to remove all section 110(2) limitations. We would like to expand the exemption so that it includes for-profit institutions and unaccredited institutions . . . [b]ut we are still okay with limiting access to registered students and to reasonable prevention of downstream misuse.").

¹⁵⁶ 37 C.F.R. § 201.40(b)(1)(i) (2016).

¹⁵⁷ *Id.* § 201.40(b)(1)(i)(B); see Joint Filmmakers Class 1 Initial at 8–9, 21.

¹⁵⁸ Joint Filmmakers Class 1 Initial at 4.

¹⁵⁹ 37 C.F.R. § 201.40(b)(1)(iii) (2016).

limitation, and deleting the “offering film analysis” limitation and references to screen-capture technology.¹⁶⁰ They propose the following language:

Motion pictures (including television shows and videos), as defined in 17 U.S.C. § 101, where circumvention is undertaken solely to make use of short portions of the motion pictures for the purpose of criticism or comment in multimedia e-books where the motion picture is lawfully made and acquired on a DVD protected by the Content Scramble System, on a Blu-ray disc protected by the Advanced Access Content System, or via a digital transmission protected by a technological measure.¹⁶¹

b. Overview of Issues

The petitions share the desire to circumvent TPMs employed on DVDs and Blu-ray discs, and by various online streaming services, to protect motion pictures. The current proposals describe an array of uses of motion pictures that proponents contend are noninfringing and are likely to be adversely affected in the next three years by section 1201(a)(1)’s prohibition on circumvention of TPMs. While the proposed uses are more specifically discussed below, the record reveals certain commonalities.

With the exception of BYU’s proposal (which, as discussed below, seeks use of full-length works), the proposed expansions are limited to uses of short portions of “motion pictures,” including television shows and videos.¹⁶² Under section 101 of the Copyright Act, “motion pictures” are a broad subset of “audiovisual works” that includes television shows, online videos, news, commercials, and other works “consisting of a series of related images which, when shown in succession, impart an impression of motion, together with accompanying sounds, if any.” Participants did not request a need to circumvent TPMs on audiovisual works that are not “motion pictures.”

In addition, the proposed expansions implicate the same types of TPMs regardless of proposed noninfringing use, namely CSS-protected DVDs, AACS-protected Blu-ray discs, and various TPMs applicable to online distribution services.¹⁶³

¹⁶⁰ Authors All. et al. Class 1 Initial at 1.

¹⁶¹ *Id.*

¹⁶² ATSP et al. Class 2 Pet. at 1.

¹⁶³ Authors All. et al. Class 1 Initial at 5–6; BYU Class 1 Initial at 2; EFF, NMR & OTW Class 1 Initial at 3; Joint Educators Class 1 Initial at 4; Joint Filmmakers Class 1 Initial at 9–10. The record in the 2015 proceeding confirmed “that CSS is a technological measure that controls access to motion pictures on DVDs, and that AACS is a measure that controls access to motion pictures on Blu-ray discs.” 2015 Recommendation at 69. In addition, in 2015 the Register concluded that “a significant number of platforms that offer digitally transmitted motion pictures, both for digital

i. Screen-Capture Technology

In the 2015 rulemaking, the Register concluded that certain uses of motion picture clips for criticism and comment do not require access to higher-quality content, and that screen-capture technology may be an alternative to circumvention—but that it can be unclear to users as to whether screen-capture technology may in fact involve circumvention.¹⁶⁴ Accordingly, the existing exemption includes a screen-capture provision to address the possibility of circumvention when using this technology.¹⁶⁵ In addition, where the Register determined that screen capture was not an adequate alternative because higher-quality content was required, the exemption allows circumvention for certain uses “where the person engaging in circumvention reasonably believes that screen-capture software or other non-circumventing alternatives are unable to produce the required level of high-quality content.”¹⁶⁶

Proponents now seek to remove all references to screen-capture technology, arguing that it is not a viable alternative because it does not permit the proposed use,¹⁶⁷ or else results in degraded-quality (and thus unusable) content.¹⁶⁸ They contend that the dual references to screen-capture technology are confusing.¹⁶⁹ In response, opponents argue that screen-capture technology remains an adequate alternative to circumvention.¹⁷⁰

downloads and for streaming, constitute technological measures controlling access to those works under section 1201(a)(1).” *Id.*

¹⁶⁴ 2015 Recommendation at 99.

¹⁶⁵ 37 C.F.R. § 201.40(b)(1)(i)(A), (ii)(A), (iii)(A), (iv)(A), (v)(A), (vi)(A), (vii)–(viii) (2016).

¹⁶⁶ *Id.* § 201.40(b)(1)(i)(B), (ii)(B), (iii)(B), (iv)(B), (v)(B), (vi)(B).

¹⁶⁷ Tr. at 253:03–06 (Apr. 11, 2018) (Band, LCA) (stating that screen capture does not reasonably permit teachers to add subtitles and/or commentary to assist with their teaching).

¹⁶⁸ Authors All. et al. Class 1 Initial at 28 (stating that screen capture results in “dropped frames, frame rate issues, insufficient resolution, and artifacting,” rendering “the resulting images unusable to use for criticism and commentary”); EFF, NMR & OTW Class 1 Reply at 7 (stating that “screen capture generally doesn’t work for the classes of uses”); Joint Filmmakers Class 1 Initial at 21 (“[A]ll screen capture software programs of which we are aware create dropped frames and loss of audio sync, among other defects.”); Tr. at 18:15–19 (Apr. 24, 2018) (Rosenblatt, OTW) (stating that some users who try to use screen capture with Netflix end up with just a black screen rather than any visual); Tr. at 26:23–24 (Apr. 24, 2018) (Neill, NMR) (stating filmmakers may be asked to go back and obtain the source material if the clips are not of sufficient quality).

¹⁶⁹ BYU Class 1 Initial at 5; Tr. at 42:16–18 (Apr. 24, 2018) (Rosenblatt, OTW).

¹⁷⁰ DVD CCA & AACCS LA Class 1 Opp’n at 37–38 (stating that screen capture is an alternative to circumvention); Joint Creators II Class 1 Opp’n at 26 (stating that proponents have “not submitted any evidence to demonstrate that screen-capture is no longer a viable alternative”).

ii. *Universities and K-12 Educational Institutions*

In the 2015 rulemaking, parties submitted multiple petitions seeking exemptions relating to uses by college and university faculty and students, and by kindergarten through twelfth-grade educators.¹⁷¹ The Register found it appropriate, based on that record, to distinguish between educational purposes requiring close analysis of film and media excerpts (where circumvention would be necessary) and more general educational uses (where screen capture would be a sufficient alternative).¹⁷² Specifically, the Register found that the “record for proposed uses in connection with K-12 students and media literacy after-school or adult education programs was not well developed” and did not demonstrate that screen capture could not meet those needs.¹⁷³ The Register thus recommended a screen-capture exemption for those categories.¹⁷⁴ Regarding K-12 educators, the record was more robust and included examples where high school educators relied upon DVD excerpts to facilitate classroom analysis of films.¹⁷⁵ The Register accordingly recommended the current exemption to allow access by K-12 instructors to DVDs or digitally distributed material for purposes of close analysis.¹⁷⁶ Finally, for college and university educators and students, the Register found that the record demonstrated that access to Blu-ray discs may occasionally be required to engage in close analysis in cinema studies or similar courses if DVD or other standard-definition materials are insufficient to accomplish the desired analysis of visual or sonic details.¹⁷⁷

Now, BYU proposes to eliminate distinctions based on education level and type of educational course because “[i]nstructors and pupils regularly make noninfringing performances of motion pictures in a wide range of educational settings,”¹⁷⁸ and they should be able to make these uses “as long as they satisfy the statutory conditions set forth in Section 110(1) or 110(2).”¹⁷⁹ In addition, BYU maintains the existing exemption should not continue to “lump[] in” educational uses with uses for multimedia e-books and filmmaking, as the statute gives special preference to non-profit educational users.¹⁸⁰

¹⁷¹ Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 79 Fed. Reg. 73,856, 73,859 (Dec. 12, 2014).

¹⁷² The history of the MOOCs exemption is discussed in the next section.

¹⁷³ 2015 Recommendation at 101.

¹⁷⁴ *Id.*

¹⁷⁵ *Id.* at 102.

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ BYU Class 1 Initial at 4.

¹⁷⁹ *Id.* at 5.

¹⁸⁰ Tr. at 224:15–225:07 (Apr. 11, 2018) (Midgley, BYU); *see also* 17 U.S.C. § 1201(a)(1)(C)(ii)–(iii).

iii. Massively Open Online Courses (“MOOCs”)

As described during the 2015 rulemaking, MOOCs “typically consist of pre-recorded lectures that may be illustrated, as appropriate, with short clips and still images from audiovisual works.”¹⁸¹ In 2015, the record consisted of examples showing MOOCs provided by accredited nonprofit educational institutions (though sometimes through third-party platforms).¹⁸²

In the 2015 rulemaking, the Register determined that section 110(2)—which provides an exception in copyright law for certain uses of copyrighted works by nonprofit educators in distance education¹⁸³—offers meaningful guidance on balancing “pedagogical needs in distance learning with copyright owners’ concerns of harmful impact.”¹⁸⁴ The Register thus recommended the incorporation of section 110(2)’s requirements “that uses be limited to nonprofit educational institutions, that transmissions be limited to enrolled students, and that the transmitting body institute policies regarding copyright protection.”¹⁸⁵ The Register also recommended requiring MOOCs making use of the exemption “to employ TPMs that reasonably prevent the retention and unauthorized dissemination of copyrighted content, as provided in section 110(2).”¹⁸⁶

Now, Joint Educators assert that the Acting Register should broaden the exemption to include “all online courses,” including courses offered by for-profit and unaccredited educational institutions, so that “all online learners and teachers have the same access to effective educational methods.”¹⁸⁷ Proponents assert that “the development of new and innovative educational opportunities is currently and will continue to be constrained if learners cannot access a full range of online education settings that can access the same audiovisual content that is now available in the conventional classroom and in qualifying MOOCs.”¹⁸⁸ Further, proponents argue that the TEACH Act “clings to the outmoded notion” that for-profit and non-profit educational institutions should be treated differently.¹⁸⁹

¹⁸¹ 2015 Recommendation at 31 (citation omitted).

¹⁸² *Id.* at 74–75.

¹⁸³ 17 U.S.C. § 110(2); *see also* U.S. COPYRIGHT OFFICE, REPORT ON COPYRIGHT AND DIGITAL DISTANCE EDUCATION 77–84 (1999), http://www.copyright.gov/reports/de_rprt.pdf.

¹⁸⁴ 2015 Recommendation at 102.

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

¹⁸⁷ Joint Educators Class 1 Initial at 3, 5.

¹⁸⁸ *Id.* at 12.

¹⁸⁹ *Id.* at 9–10.

iv. Filmmaking

Joint Filmmakers request to broaden the exemption by covering all types of films, including narrative (or fictional) films,¹⁹⁰ a request which the Register rejected in 2015.¹⁹¹ At that time, proponents asserted that there was “no clear dividing line between documentary and narrative filmmaking for purposes of determining whether the uses are likely to be fair and that the categories should therefore be treated the same with respect to the question of noninfringing use.”¹⁹² But the Register noted that with narrative films, there was “no presumption that their primary purpose is to offer criticism or commentary,” as opposed to entertainment, and found a “significant countervailing concern” that uses might supplant the robust market for motion picture clips.¹⁹³ The Register considered whether there might be an appropriate way to limit the types of narrative films to which the exemption might conceivably apply, but was unable to draw sound distinctions based on the then-existing record.¹⁹⁴ In the end, the Register recommended that the then-existing exemption for documentary films be continued, but determined that the record did not support a finding that the use of motion picture clips in narrative films was, as a general matter, likely to be noninfringing.¹⁹⁵

Proponents now argue that the exemption should be expanded because defining a “documentary” film is difficult, as many films that are not traditionally classified as a “documentary” contribute to educational and social commentary.¹⁹⁶ Proponents assert that many filmmakers do not know whether they are permitted to use the exemption.¹⁹⁷ In support, Joint Filmmakers’ submission discusses a number of films that they say reflects an increasingly “hybrid” approach to fictional/documentary filmmaking.¹⁹⁸

v. Multimedia E-Books

In the 2015 rulemaking, the Register found that proponents had sufficiently demonstrated that some meaningful portion of the proffered uses for multimedia e-

¹⁹⁰ Joint Filmmakers Class 1 Initial at 8.

¹⁹¹ 2015 Recommendation at 102–03.

¹⁹² *Id.* at 41.

¹⁹³ *Id.* at 79.

¹⁹⁴ *Id.* at 80 (discussing lack of consensus around meaning of terms like “biopic,” “based on a true story,” docudrama,” “inspired by” and “films that portray real events”).

¹⁹⁵ *Id.* at 102–03.

¹⁹⁶ Joint Filmmakers II Class 1 Initial at 7.

¹⁹⁷ FI, IDA & KEF Class 1 Reply at 12.

¹⁹⁸ Joint Filmmakers Class 1 Initial at 7.

books were likely to be fair, such as seeking to incorporate motion picture excerpts in e-books analyzing techniques in motion picture sound editing or cinematography.¹⁹⁹ The Register found, however, that the record lacked evidence demonstrating a need to include uses in fictional e-books or for purposes beyond close analysis of the underlying work.²⁰⁰ Because the record contained no evidence of proposed uses in e-books that were not offering “film analysis,” the Register retained language from the 2012 rulemaking limiting uses of motion picture excerpts to nonfiction multimedia e-books offering film analysis.²⁰¹

Currently, Authors Alliance et al. argue that the Register’s previous fair use analysis should not change based on whether the content is fictional and/or not directed to film analysis.²⁰² Proponents assert that fictional multimedia e-books and nonfiction multimedia e-books beyond film analysis are often noninfringing, and suggest that fanfiction would benefit from the proposed exemption.²⁰³ Proponents suggest that expanding the existing exemption to include fiction would be consistent with the existing exemption for noncommercial videos, and that multimedia e-book authors would merely be using a different medium (*i.e.*, e-books) to engage in criticism and comment.²⁰⁴

2. Discussion

a. AACSS2 and Ultra HD Content

Before considering the specific proposals in this class, the Acting Register first addresses an argument by opponents that the exemption should not be expanded to include AACSS2 technology, which is employed to protect ultra-high-definition or “4K” content distributed on Ultra HD Blu-ray discs.²⁰⁵ Opponents maintain that none of the petitions expressly sought extension to AACSS2,²⁰⁶ and AACSS LA notes that the current exemption does not extend to AACSS2, as that technology did not exist at the time of the 2015

¹⁹⁹ 2015 Recommendation at 77.

²⁰⁰ *Id.* at 77, 100.

²⁰¹ *Id.* at 100.

²⁰² Authors All. et al. Class 1 Initial at 3.

²⁰³ *Id.* at 7–15.

²⁰⁴ Authors All. et al. Class 1 Reply at 14. In the context of discussing multimedia e-books, OTW raised the issue of podcasters desiring to circumvent motion pictures to acquire high-quality audio. Tr. at 72:06–09, 73:03–12 (Apr. 24, 2018) (Rosenblatt, OTW). The record does not include, however, any examples of podcasters needing to circumvent a motion picture, or explain why alternatives to circumvention are inadequate.

²⁰⁵ AACSS LA Opp’n at 2.

²⁰⁶ *Id.* at 6–8; Joint Creators II Class 1 Opp’n at 5, 24.

rulemaking.²⁰⁷ AACCS LA contends that AACCS2 technology differs from AACCS1 technology in that “Blu-ray players incorporating only AACCS1 Technology will not play Ultra HD Blu-ray discs protected with AACCS2 Technology and cannot be ‘upgraded’ to play such discs,” and that the “two systems exist in parallel, serving two different markets.”²⁰⁸ Accordingly, opponents seek to exclude AACCS2 from proposed Class 1.

In response, proponents assert that the Acting Register should extend the proposed exemption to AACCS2 technology.²⁰⁹ Joint Educators, Associate Professor Anderson, and Professor Aufderheide maintain that “AACCS2 is different in form but it is fundamentally the same in function,”²¹⁰ and EFF, NMR, and OTW state that section 1201 does not require temporary exemptions to identify the specific types of TPMs at issue in addition to the category of works exempted.²¹¹ In their view, “more flexibility” should be allowed with regard to the relevant TPMs.²¹² FI, IDA and KEF state that “[m]any if not most filmmakers now film in 4K; this is quickly becoming the standard,” and ask that this rulemaking “allow modifications that permit the § 1201 exemption to keep pace with technological development.”²¹³

Proponents do not claim that Class 1 petitions identified AACCS2 as a TPM requiring circumvention to eliminate adverse effects of the section 1201 prohibition; nor do they argue that AACCS2 technology is sufficiently similar to AACCS1 technology such that the exemption already covers AACCS2 technology. In past rulemakings, the Register has declined to include new technology where the record did not demonstrate a need,²¹⁴ and exemptions to permit circumvention of new technology have been adopted only upon showings of a need to access works protected by that specific technology. For example, the 2015 rulemaking recommended an exemption to circumvent AACCS technology for the first time, only after concluding that DVDs and digitally transmitted material were, in some instances, insufficient to serve as alternatives to content accessible only on Blu-ray discs.²¹⁵ Here, in contrast to the detailed record regarding CSS, AACCS, and access controls on digitally transmitted content, there is very little in the record regarding

²⁰⁷ AACCS LA Opp’n at 4–6.

²⁰⁸ *Id.* at 3.

²⁰⁹ EFF, NMR & OTW Class 1 Reply at 12; Joint Educators Class 1 Reply at 8–9.

²¹⁰ Joint Educators Class 1 Reply at 9.

²¹¹ EFF, NMR & OTW Class 1 Reply at 12.

²¹² *Id.* at 12.

²¹³ FI, IDA & KEF Class 1 Reply at 5.

²¹⁴ *See* 2012 Recommendation at 135 (finding “the record [did] not reflect a substantial adverse impact due to the inability to use motion picture materials contained on Blu-ray discs”).

²¹⁵ *See* 2015 Recommendation at 89–92.

AACS2.²¹⁶ Opponents contend that “[n]o one has released a universal hack to all Ultra HD films protected by AACS2,” explaining that its integrity is “especially important” to the thriving ecosystem for motion pictures.²¹⁷ Proponents do not contest this.

Accordingly, the Acting Register finds the record insufficient to support extending the proposed class to AACS2. None of the petitions expressly seek expansion to AACS2, and the record does not support a finding that such technology is adversely affecting noninfringing uses or that it is sufficiently similar to AACS1 to be covered by the current exemption. Proposed Class 1 thus addresses only TPMs employed on DVDs and Blu-ray discs, and by various online streaming services to protect motion pictures.

b. Single Overarching Exemption for Purposes of Comment and Criticism

As noted above, EFF, NMR, and OTW propose replacing the existing exemption, which consists of multiple subparts relating to use of motion picture clips, with a single overarching exemption for purposes of criticism and comment.²¹⁸ EFF, NMR, and OTW do not dwell on specific examples of proposed noninfringing uses or analyze such proposed uses under the 1201 statutory factors,²¹⁹ but rather focus on “the value of adopting a simple overarching exemption that would embrace multiple audiovisual classes” for purposes of criticism and comment.²²⁰ The factual record for this proposal largely relies on submissions by other parties seeking to expand the existing audiovisual exemption.²²¹ Accordingly, the Acting Register generally addresses EFF, NMR, and OTW’s comments here, and more specifically in the context of the other parties’ proposed uses below.

EFF, NMR, and OTW maintain that the legislative history of section 1201 indicates that preserving fair use should be paramount in this rulemaking, but that unnecessary

²¹⁶ Authors All. et al. Class 1 Initial at 5–6, App. A (detailing WebM, DVR, HDCP, HTML 5, WebCrypto API, MPEG-DASH, EME, and Widevine encryption technologies); Joint Educators Class 1 Initial at 4–5 (detailing Protected Streaming on Adobe, Microsoft PlayReady, and Apple FairPlay); Joint Filmmakers Class 1 Initial at 9–10.

²¹⁷ Joint Creators II Class 1 Opp’n at 24. In contrast, both prior and current rulemakings disclose the methods of circumvention for the access controls covered by the present exemption. *See, e.g.*, EFF, NMR & OTW Class 1 Initial at 3 (referencing MacTheRipper 4.1, DVD Decrypter, Mac DVDRipper Pro, Handbrake, MakeMKV, and Aunsoft).

²¹⁸ EFF, NMR & OTW Class 1 Initial at 2–3.

²¹⁹ *Id.* at 3.

²²⁰ *Id.*

²²¹ *See id.*

complexities in the existing exemption undermine fair use.²²² While noting that the Copyright Office’s 2006 decision to define some classes by reference to the use and user introduced “valuable and much-needed flexibility” into the rulemaking process, they note that to determine whether the exemption applies, a user needs to analyze both the intended use, as well as his or her status as a type of user—requirements that they believe go beyond the requirements of fair use.²²³ They assert that the existing language is “practically unreadable” due to their complexities,²²⁴ and “a challenge for clients and attorneys alike to apply in practice.”²²⁵ For example, EFF, NMR, and OTW explain that in 2013, the USC Intellectual Property and Technology Law Clinic developed a process to help documentary filmmakers determine how to make use of the exemption, and the process required seven steps.²²⁶

Moreover, EFF, NMR, and OTW assert that their proposed exemption is sufficiently narrow, as the sole limitations it would remove from the current exemption are the references to particular types of users.²²⁷ They note that their proposal incorporates and consolidates well-established limitations from the current exemption—namely, those limiting its scope to “(1) short portions, (2) of motion pictures, (3) on particular physical or digital media, (4) for purposes of commentary or criticism, (5) only where the person engaging in circumvention reasonably believes that non-circumventing alternatives are unable to produce the required level of high-quality source material and (6) only where the use is a fair use.”²²⁸ They also note that opponents did not challenge any of this language in the existing exemption when it was petitioned for renewal.²²⁹ According to EFF, NMR, and OTW, their proposed exemption ties the class definition to key fair use factors (criticism and comment, and the amount used).²³⁰ They suggest that some valid uses are not included by the current exemptions, such as the use of film clips to illustrate

²²² *Id.* at 3–5.

²²³ *Id.* at 6.

²²⁴ *Id.* at 7.

²²⁵ *Id.* (stating this result is “contrary to the Office’s well-justified goal of crafting regulations that ordinary people can understand and apply”); *see also* Section 1201 Report at vii (describing Office’s commitment to “simplified regulatory language”), 151 (“[D]rafting the section 1201 regulatory language in plain language is a worthy goal, echoing efforts from the Legislative and Executive Branches to promote clear communication to the public.”).

²²⁶ EFF, NMR & OTW Class 1 Initial at 9.

²²⁷ EFF, NMR & OTW Class 1 Reply at 3.

²²⁸ *Id.*

²²⁹ *Id.*

²³⁰ EFF, NMR & OTW Class 1 Initial at 10.

legal principles to jurors.²³¹ Finally, they assert that opponents have never demonstrated that the wording of the exemption “affects the behavior of those who engage in unfair uses or traffic in decryption technologies.”²³²

In response, opponents contend that this request overstates the complexity of the existing exemption,²³³ and that the proposed expansion eliminates “carefully drawn distinctions among potential users of motion picture content.”²³⁴ DVD CCA and AACSLA note that the proposed expansion “would enable anyone to circumvent TPMs in order to use short portions of otherwise protected motion pictures for the purpose of criticism or comment, regardless of who the user is, the specific use to be enabled, or the context in which the activity would occur.”²³⁵

Opponents state that in enacting section 1201, Congress purposely created specific and narrow exemptions (*e.g.*, section 1201(j) permits an exemption for security research, provided it is conducted in good faith), and that creating broad categories of exemptions would undermine the effectiveness and intent of the section 1201(a)(1) prohibition.²³⁶ And to be appropriately narrow, opponents contend that exemptions should identify the specific persons who will be adversely affected in their abilities to make noninfringing uses by the section 1201 prohibition.²³⁷ Joint Creators II note, however, that they are open to simplifying the language in principle, so long as the relevant limitations are maintained; they submit proposed language that is one-third the length of the current exemptions.²³⁸

After consideration, the Acting Register declines to adopt EFF, NMR, and OTW’s proposed language, finding it overly broad for purposes of section 1201, and given the rulemaking record upon which the current exemption has been adopted.²³⁹ Although

²³¹ *Id.* (describing use of three clips from *The Town* to illustrate bank robbery techniques, as well as other courtroom uses of fictional film clips). The record does not, however, demonstrate that circumvention would be required to engage in such uses, or that screen capture would not be an adequate alternative to circumvention.

²³² *Id.* at 7.

²³³ Joint Creators II Class 1 Opp’n at 8.

²³⁴ DVD CCA & AACSLA Class 1 Opp’n at 5.

²³⁵ *Id.* at 8.

²³⁶ *Id.* at 6.

²³⁷ *Id.* at 7–8.

²³⁸ Joint Creators II Class 1 Opp’n at 8–9.

²³⁹ *See* 2015 Recommendation at 100 (“A mere requirement that a use be ‘noninfringing’ or ‘fair’ does not satisfy Congress’s mandate to craft ‘narrow and focused’ exemptions. . . . An exemption should provide reasonable guidance to the public in terms of what uses are permitted, while at the same time mitigating undue consequences for copyright owners.”) (citations

the proposal retains some of the limitations in the existing exemption, by removing the references to specific users and uses, the context in which the criticism and comment are being made would be eliminated. Courts evaluate fair use claims on a case-by-case basis, and the context in which use of the work is being made is a significant part of that inquiry (*e.g.*, commercial versus noncommercial use).²⁴⁰ To be sure, the 1201 rulemaking is distinct, insofar as it requires a prospective determination whether a larger category of uses are, on the whole, likely to be fair use. But to ensure alignment with the case law, the Register's analysis has been aided by considering the type of user, as well as the type of use, to define classes to recommend exemptions.²⁴¹ As one proponent noted, in the context of the section 1201 policy report, this approach "brings the idea of a class much more in line with fair use, which is about use and users."²⁴² The proposed language would eliminate these legally important distinctions. Consistent with this fair use evaluation, the Register has also previously decided not to exempt certain uses, ostensibly also for criticism and comment, given the lack of factual support in the record demonstrating that they were likely to be noninfringing.²⁴³

In addition, the Acting Register notes that the nature of the use affects more than the infringement analysis: the fourth section 1201 factor requires examination of the effect of circumvention on the market for or value of the copyrighted works. Without a fuller understanding of the context of the proposed use, not least whether it is intended to be commercialized, it would be difficult for the Register to evaluate market effects.

omitted); 2006 Recommendation at 18 ("Typically, the impetus for an exemption is the demonstration of sufficient evidence proving that a *particular noninfringing use*, one that warrants an exemption, has been adversely affected by the prohibition, *e.g.*, the noninfringing use cannot be accomplished without circumvention. Thus, the application of an exemption to *all* noninfringing uses or users will in many cases be broader than is justified by the evidence."); 2003 Recommendation at 84 (rejecting proposal because "proponents of an exemption for 'all works' have utterly failed to propose 'a particular class of copyrighted works'").

²⁴⁰ See *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 585 (1994).

²⁴¹ See, *e.g.*, *Cambridge Univ. Press v. Patton*, 769 F.3d 1232, 1264 (11th Cir. 2014) ("[W]e must consider not only the nature of the user, but the use itself."); *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 921–22 (2d Cir.1994) ("[A] court's focus should be on the *use* of the copyrighted material and not simply on the *user*, [although] it is overly simplistic to suggest that the 'purpose and character of the use' can be fully discerned without considering the nature and objectives of the user.").

²⁴² Section 1201 Report at 109 (citing Tr. at 95:13–96:07 (May 19, 2016) (Decherney, Univ. of Pa.).

²⁴³ See, *e.g.*, 2015 Recommendation at 77 (declining to expand the multimedia e-books exemption to fictional e-books, as "the record lack[ed] evidence demonstrating a need" for expansion, "as no examples of such uses were submitted").

That said, the Copyright Office remains dedicated to simplified regulatory language where possible, particularly in cases where the exemption is intended for individual users. Here, however, there's some suggestion that significant clarification may not be needed: the survey referenced by EFF, NMR, and OTW appears to suggest that, when presented with the actual regulatory language, users of the existing exemption are "both accurate and confident" in applying the exemption to proposed uses.²⁴⁴ The Acting Register appreciates EFF, NMR, and OTW's point of view and considers various ways to consolidate and reorganize the regulatory text in discussing the other proposed expansions below.

c. Works Protected by Copyright

With respect to the requirement that the relevant TPMs control access to copyrightable works, this class again involves the use of motion pictures for purposes of criticism, comment, or educational uses. Therefore, like the 2015 rulemaking, the Acting Register finds that at least some works included in the proposed expanded class are protected by copyright.

d. Asserted Noninfringing Uses

Proponents claim that a significant number of the proposed uses fall within the favored purposes of criticism and commentary referenced in the preamble of section 107 and are therefore likely to be fair.²⁴⁵ While otherwise analyzing each set of proposed uses separately below, the Register notes that the second and third factors governing the fair use analysis under section 107 remain relatively constant across the proposed uses. Under factor two—the nature of the copyrighted work—it is well established that motion pictures are creative and thus at the core of copyright's protective purposes.²⁴⁶ But in the case of uses involving a favored purpose under the law, the second factor may be of relatively limited assistance to evaluate whether a use is fair.²⁴⁷ As in 2012 and 2015, the Acting Register concludes that the second fair use factor slightly disfavors the proposed expansion, but is not especially relevant to most of the proposed uses.²⁴⁸

Under the third factor—the amount and substantiality of the portion used in relation to the copyrighted work as a whole—the Acting Register concludes that with the exception

²⁴⁴ Patricia Aufderheide, *The Right to Decrypt Media Needs to Be More User-Friendly*, CTR. FOR MEDIA & SOC. IMPACT (Dec. 16, 2017), <http://cmsimpact.org/general/right-decrypt-media-needs-user-friendly/>; see EFF, NMR & OTW Class 1 Initial at 8 n.16 (citing same).

²⁴⁵ See 17 U.S.C. § 107.

²⁴⁶ See 2015 Recommendation at 70; 2012 Recommendation at 128.

²⁴⁷ See *Campbell*, 510 U.S. at 586.

²⁴⁸ See 2015 Recommendation at 70; 2012 Recommendation at 128.

of BYU's proposal, the limitation to circumvention for uses of "short portions" of motion pictures is integral to the various proposals.²⁴⁹ While recognizing that the extent of permissible copying may vary, for purposes of this class, the "short portions" limitation provides useful guidance as to what is generally likely to be a fair use without imposing a wholly inflexible rule as to length. As a general matter, longer uses are less likely to be considered fair because they are more likely to usurp the market for a work.

i. Universities and K-12 Educational Institutions

BYU contends that its proposed activities—performances of full-length motion pictures under section 110(1) and short portions thereof under section 110(2) for nonprofit educational purposes—are noninfringing because sections 110(1) and 110(2) allow for such public performances of motion pictures by nonprofit educational institutions.²⁵⁰ BYU acknowledges, however, that digital copies would need to be made and stored to facilitate the proposed uses.²⁵¹ Proponents contend that any server copies or other reproductions made would be covered either under section 112(f)'s exception for nonprofit educational institutions to make copies when making transmissions authorized under section 110(2), or under section 107 as fair use.²⁵²

1) Sections 110(1) and 110(2)

BYU argues that its proposed performances of full-length motion pictures are authorized under section 110(1). That provision allows for the public performance and display of copyrighted works for educational purposes, subject to certain conditions: the performance must be made by instructors or pupils in the course of face-to-face teaching activities of a nonprofit educational institution, in a classroom or similar place devoted to instruction, and not knowingly using lawfully made copies.²⁵³ Because section 110(1) does not restrict the amount of the motion picture that can be used, either short clips or an entire motion picture may be shown within a classroom, subject to the other conditions.²⁵⁴

²⁴⁹ See 2015 Recommendation at 70; 2012 Recommendation at 128.

²⁵⁰ BYU Class 1 Initial at 3–4.

²⁵¹ See *id.* at 4 ("In many cases, such circumvention may necessitate that a copy of the motion picture be stored on a media server or similar device. Such reproduction and storage would be subject to the conditions for ephemeral recordings, as provided in 17 U.S.C. § 112(f).").

²⁵² Tr. at 233:03–07 (Apr. 11, 2018) (Midgley, BYU).

²⁵³ 17 U.S.C. § 110(1) (the performance or display of certain works in certain educational settings does not constitute infringement "unless, in the case of a motion picture . . . the performance . . . is given by means of a copy that was not lawfully made under this title, and that the person responsible for the performance knew or had reason to believe was not lawfully made").

²⁵⁴ See *id.*

Section 110(2), also referred to as the TEACH Act, also provides an exception for certain uses of copyrighted works by nonprofit educators, but in distance education.²⁵⁵ Section 110(2) has a number of requirements. First, the transmitter must be “a governmental body or an accredited nonprofit educational institution.”²⁵⁶ Second, the use must be made at the direction of an instructor teaching a class session as “a regular part of the systematic mediated instructional activities” – and for motion pictures, only in a “reasonable and limited portion[.]”²⁵⁷ Third, as with 110(1), any copies involved in transmitting the performance must be lawfully made and acquired.²⁵⁸ Fourth, the reception of the transmission must be limited, to the extent feasible, to students officially enrolled in the course.²⁵⁹ Fifth, the transmitting educational institution must institute policies and provide notice regarding copyright protection to students, faculty, and relevant staff members.²⁶⁰ Finally, the transmitting body must apply technological measures that limit the retention and unauthorized further dissemination of the work in accessible form.²⁶¹

Because section 110(1) provides “no limitations or restrictions” on the length of motion picture performances in face-to-face teaching, BYU argues that “instructors or pupils can perform even *full-length* motion pictures in class, and such performances are unquestionably noninfringing, provided that they satisfy the remaining conditions set forth in the statute.”²⁶² In addition, BYU contends that “[i]nstructors have requested the ability to queue up a series of clips from a film, and add comments, annotations, interactions, questions, or other customization to the playback of the video to enhance or individualize the viewing assignment,” and they “should be enabled to make such uses, as long as they satisfy the statutory conditions set forth in Section 110(1) or 110(2).”²⁶³

Proponents provide multiple examples of proposed educational uses, including teachers creating compilations of clips from foreign language films with and without subtitles;²⁶⁴ teachers showing full-length motion pictures in foreign language courses “to provide students with opportunities to hear a given foreign language as spoken in film and

²⁵⁵ *Id.* § 110(2); *see also* U.S. COPYRIGHT OFFICE, REPORT ON COPYRIGHT AND DIGITAL DISTANCE EDUCATION (1999), http://www.copyright.gov/reports/de_rprt.pdf.

²⁵⁶ 17 U.S.C. § 110(2).

²⁵⁷ *Id.*

²⁵⁸ *Id.*

²⁵⁹ *Id.* § 110(2)(C)(i).

²⁶⁰ *Id.* § 110(2)(D)(i).

²⁶¹ *Id.* § 110(2)(D)(ii)(I).

²⁶² BYU Class 1 Initial at 3.

²⁶³ *Id.* at 4–5.

²⁶⁴ Tr. at 242:17–23, Hearing Ex. 1-E (Apr. 11, 2018) (Midgley, BYU).

television programs from a given country or region”;²⁶⁵ the use of clips from the film *Alone in the Wilderness* to instruct students on the steps involved in building a house, and then to make their own how-to videos;²⁶⁶ students using the animated film *Gnomeo and Juliet* to “visually map the characters, the rising action, the conflict and identify the culminating point in the narrative” of the tragedy *Romeo and Juliet*;²⁶⁷ teachers captioning popular movies to enhance reading skills;²⁶⁸ students captioning motion pictures to strengthen listening comprehension and writing skills;²⁶⁹ students preparing videos for competitions, such as National History Day;²⁷⁰ students remixing motion picture clips in non-film courses;²⁷¹ and a law professor using audiovisual examples in classes to illustrate legal concepts.²⁷²

Opponents note that although section 110(1) allows certain public performances of complete motion pictures in classrooms without obtaining licenses, it does *not* allow those performances to be made from unauthorized copies.²⁷³ Opponents also note that sections 110(1) and 110(2) provide exceptions only to public performance and display rights, not rights of reproduction or distribution, and that the proposed uses thus do not fall solely under them.²⁷⁴ Specifically, opponents note that the proposed exemption would “involve making copies of full-length films in a librarying context,” thereby “giv[ing] effect not just to classroom instructions or distance education implicating the performance right permitted under sections 110 but also would implicate the reproduction and distribution rights to the work.”²⁷⁵

The Acting Register finds that the thrust of the proposed exemption implicates the rights of reproduction and distribution rather than public performance or display — circumvention is required to make copies, not to show a film in a classroom from a lawfully acquired disc. To use proponents’ own example, BYU likely already can rely

²⁶⁵ BYU Class 1 Initial at 4.

²⁶⁶ Tr. at 241:07–20 (Apr. 11, 2018) (Hobbs, Media Educ. Lab).

²⁶⁷ Tr. at 255:02–17 (Apr. 11, 2018) (Hobbs, Media Educ. Lab).

²⁶⁸ Media Educ. Lab Class 1 Post-Hearing Resp. at 2 (June 10, 2018).

²⁶⁹ *Id.*

²⁷⁰ *Id.*

²⁷¹ Authors All. et al. Class 1 Post-Hearing Resp. at 4 (June 11, 2018).

²⁷² EFF, NMR, & OTW Class 1 Post-Hearing Resp. at 2 (June 11, 2018).

²⁷³ Joint Creators II Class 1 Opp’n at 22.

²⁷⁴ DVD CCA & AACS LA Class 1 Opp’n at 12; Joint Creators II Class 1 Opp’n at 22.

²⁷⁵ DVD CCA & AACS LA Class 1 Opp’n at 12; *see also* Joint Creators II Class 1 Opp’n at 22 (“If Congress wanted educational institutions to be exempt from purchasing complete copies of works, it would have included an exception to the reproduction right within § 110 — which it clearly did not.”).

on section 110(1) to show *Moana* in a foreign language classroom; what it seeks to do now is circumvent the TPMs preventing it from copying and storing that film on a server, so it can show it in multiple classrooms without purchasing additional copies or equipment.²⁷⁶ Section 110 cannot, by itself, establish that this action is likely to be noninfringing, since any performances of motion pictures under sections 110(1) and 110(2) must originate from lawfully acquired copies.²⁷⁷ Accordingly, the Acting Register cannot conclude that the proposed uses are likely noninfringing without first determining whether the copies made and used to facilitate the motion picture performances are themselves noninfringing under section 112(f) and/or fair use.

2) *Section 112(f)*

BYU agrees that the proposed exemption “may necessitate that a copy of the motion picture be stored on a media server or similar device,” but asserts that this reproduction and storage is noninfringing under section 112(f).²⁷⁸ Section 112(f), which authorizes copies created in making transmissions under section 110(2), states:

[I]t is not an infringement of copyright for a governmental body or other nonprofit educational institution entitled under section 110(2) to transmit a performance . . . to make copies . . . of a work that is in digital form . . . to be used for making transmissions authorized under section 110(2), if—

- (A) such copies . . . are retained and used solely by the body or institution that made them, and no further copies . . . are reproduced from them, except as authorized under section 110(2); and
- (B) such copies . . . are used *solely* for transmissions authorized under section 110(2).²⁷⁹

Accordingly, on its face, section 112(f) does not permit nonprofit educational institutions to make copies to facilitate performances under section 110(1).²⁸⁰

²⁷⁶ See Tr. at 303:24–304:01 (Apr. 11, 2018) (Midgley, BYU).

²⁷⁷ 17 U.S.C. § 110(1)–(2).

²⁷⁸ BYU Class 1 Initial at 4.

²⁷⁹ 17 U.S.C. § 112(f)(1)(A)–(B) (emphasis added).

²⁸⁰ *Id.* § 112(f)(1)(B); see also H.R. REP. NO. 107-687 at 3 (“The [TEACH Act] also amends section 112 . . . to permit storage of copyrighted material on servers in order to permit the performances and displays authorized by section 110(2) to be made asynchronously in distance education courses.”).

The Acting Register thus finds BYU's reliance on section 112(f) unhelpful to support its request to make copies to facilitate performances in face-to-face teaching under section 110(1). Section 112(f) does support a conclusion that making and temporarily storing digital copies of motion pictures to perform "reasonable and limited portions" in distance teaching would be noninfringing, assuming the other requirements of section 110(2) are met. This appears already covered, however, by the existing exemption.

3) *Fair Use*

Alternatively, proponents assert that the copying and reproduction of motion pictures under the proposed exemption for purposes of sections 110(1) and 110(2) is noninfringing under the doctrine of fair use.²⁸¹ Proponents cite *Authors Guild, Inc. v. HathiTrust* and *Authors Guild v. Google* ("Google Books") for the contention that such copying constitutes fair use if it is for noninfringing purposes under sections 110(1) or 110(2).²⁸² In response, opponents distinguish the proposed use from *HathiTrust* and *Google Books*, noting that proponents' "copying is not for the primary purpose of indexing and data analysis, but rather for the specific purpose of performing the works themselves."²⁸³ Opponents also argue that proponents seek to engage in space shifting—when a work is transferred from one storage medium to another²⁸⁴—stating that "no court has held that space-shifting constitutes fair use."²⁸⁵

The participants largely focus on the proposed use of showing full length (or at least more than short portions of) motion pictures in face-to-face teaching under section 110(1). There is less discussion on the use of short portions of motion pictures in face-to-face education (and no specific examples of proposed use for distance education apart from the separate MOOC category), presumably because the existing exemption permits circumvention in many such instances.²⁸⁶ However, as noted, the exemption's subparts relating to educational uses vary by type of access control (Blu-ray, DVD, access controls on digitally transmitted content), user (teacher versus student), and use (close analysis compared to general education). BYU's examples also appear to include uses beyond

²⁸¹ BYU Class 1 Initial at 4.

²⁸² *See id.*; Tr. at 232:18–234:02 (Apr. 11, 2018) (Midgley, BYU) ("I would just point to . . . *Google Books* and *HathiTrust* as examples of cases where full copies of millions of works reside, right now, on servers hosted by a for-profit, private company, and the court has ruled in that specific instance that those full copies that exist are fair, because they enable the transformative use that researchers need to make downstream."); *Authors Guild, Inc. v. HathiTrust*, 755 F.3d 87, 97 (2d Cir. 2014); *Authors Guild v. Google, Inc.*, 804 F.3d 202 (2d Cir. 2015) ("*Google Books*").

²⁸³ DVD CCA & AACCS LA Class 1 Opp'n at 12 n.15.

²⁸⁴ 2015 Recommendation at 107 (citation omitted).

²⁸⁵ Joint Creators II Class 1 Opp'n at 21.

²⁸⁶ 37 C.F.R. § 201.40(b)(1)(iv), (vi) (2016).

criticism and comment, a limitation of the current exemption. Accordingly, the Acting Register will evaluate whether expansion for “short portions” likely constitutes fair use, before considering whether making a copy to show a full length film in face-to-face teaching constitutes fair use.

Regarding the use of short motion picture clips in face-to-face teaching, the Acting Register concludes that the record demonstrates that a significant number of the proposed uses are likely to be fair, largely following the reasoning of past rulemakings.²⁸⁷ In addition to the extensive record of uses for commentary and criticism considered in the 2015 rulemaking, proponents introduced multiple additional examples that may not fall neatly within an existing exemption.²⁸⁸ These included, for example, teachers’ use of short film clips to create compilations from foreign language films with and without subtitles,²⁸⁹ and students captioning motion pictures to strengthen listening comprehension and writing skills; in such cases, the teaching or scholarship activities are still favored purposes under section 107, but may not qualify under the existing exemption for “comment or criticism.”²⁹⁰

Each of these uses is favored under the preamble of section 107 and generally appears to be transformative or otherwise favored. In addition, because only “short portions” are involved, they are more likely to be fair use.²⁹¹ Finally, when the use of a work is for criticism or commentary, it is presumed to be less likely to compete with the market for the underlying work.²⁹² Notably, opponents do not contest that short, educationally oriented uses in face-to-face or distance teaching are likely to be fair use, nor have they introduced evidence that the intended uses of excerpts by faculty and students are likely to undermine the value of copyright-protected motion pictures.

While the record demonstrates that many of these uses of short motion picture clips for educational purposes are likely to be fair, it also suggests that the current regulatory language does not fully cover all of these uses, while the complexity of the existing

²⁸⁷ See, e.g., 2015 Recommendation at 71–72.

²⁸⁸ See earlier discussion of section 110(1).

²⁸⁹ Tr. at 242:17–23, Hearing Ex. 1-E (Apr. 11, 2018) (Midgley, BYU).

²⁹⁰ Media Educ. Lab Class 1 Post-Hearing Resp. at 2 (June 10, 2018); see also Authors All. et al. Class 1 Post-Hearing Resp. at 4 (discussing students remixing motion picture clips in non-film courses); Media Educ. Lab Class 1 Post-Hearing Resp. at 2 (discussing students preparing videos for competitions, such as National History Day); Tr. at 241:07–20 (Apr. 11, 2018) (Hobbs, Media Educ. Lab) (discussing the use of clips from the film *Alone in the Wilderness* to instruct students on the steps involved in building a house, and then make their own how-to videos).

²⁹¹ Joint Creators II Class 1 Opp’n at 22 (agreeing that uses of short portions are “more compatible” with fair use).

²⁹² 2015 Recommendation at 71.

exemption is difficult for teachers and students to follow. BYU suggests that the language is “needlessly complex and difficult to interpret, especially for teachers and educational administrators without formal legal training.”²⁹³ Professor Hobbs similarly testifies that the exemption is “extremely confusing for teachers.”²⁹⁴ In sum, this points toward adopting an expanded exemption with simplified language for educational uses, including eliminating distinctions between types of courses, and distinctions between students and faculty at K-12 educational institutions and universities and colleges.

The same logic does not extend, however, to the copying of full motion pictures for performances in face-to-face teaching. The Register has previously found the “short portions” limitation to be “critical” in recommending exemptions for audiovisual works.²⁹⁵ BYU’s written comments are generally focused on the practical need for a broader exemption for educational uses (which it characterizes as aligned with sections 110(1) and 110(2)’s educational performances exceptions), and the declining popularity of DVD players in the marketplace. But it does not point to case law supporting the notion generally that ripping and librarying copies for educational uses are likely to be fair under section 107, save for referencing *HathiTrust* and *Google Books*.²⁹⁶ Those opinions, however, distinguished the proposed uses of indexing and data analysis, from performing the works themselves, and carefully considered the risk that those circumscribed uses might act as market substitutes.²⁹⁷ In this case, however, full length copies of motion pictures to facilitate performances under section 110(1) are *supposed* to substitute for the original works in disc form.

Moreover, the Supreme Court has noted “the mere fact that a use is educational and not for profit does not insulate it from a finding of infringement.”²⁹⁸ While section 110(1)’s

²⁹³ BYU Class 1 Reply at 2–3; *see* Tr. at 216:13–217:02 (Apr. 11, 2018) (Midgley, BYU) (proposing recognizing educational users “as a group, in the same way that the statute does.”); Tr. at 218:04–220:17 (Apr. 11, 2018) (Band, LCA) (testifying as to need for a simplified exemption for varied educational uses).

²⁹⁴ Tr. at 220:12–221:07 (Apr. 11, 2018) (Hobbs, Media Educ. Lab).

²⁹⁵ 2012 Recommendation at 138–39; *see* 2015 Recommendation at 30 (citing same).

²⁹⁶ BYU Class 1 Initial at 4.

²⁹⁷ *Google Books*, 804 F.3d at 224–25 (finding that even though the search function allowed the user to view “snippets” of the book in which the search term appears in the book, it did not effectively substitute for the original works because viewers were seeing such a small percentage of the book); *HathiTrust*, 755 F.3d at 101 (finding that a full-text search function did not serve as a substitute for the original books because the search results did not display any text from the underlying works).

²⁹⁸ *Campbell*, 510 U.S. at 584; *see also Cambridge Univ. Press*, 769 F.3d at 1263–64 (“[C]opyright has always been used to promote learning, . . . allowing some leeway for educational fair use furthers the purpose of copyright by providing students and teachers with a means to lawfully access

protection for performances of full works by educational institutions demonstrates the importance of enabling educational performances, it notably does not include exceptions to the rights of reproduction and distribution. As prior rulemakings have noted, current law “does not guarantee access to copyrighted material in a user’s preferred format.”²⁹⁹ Moreover, proponents do not address Joint Creators II’s contention that the exemption would essentially requisition the creation of complete copies of works “in the clear,” to be circulated around campuses, perhaps online, which may threaten the market for those works.³⁰⁰

Based on the relevant case law, the Acting Register cannot conclude as a general matter that the contemplated uses of full length motion pictures are likely to be fair use.

ii. MOOCs

The 2015 rulemaking identified fair use as the noninfringing basis for this exempted use, and the proposed expansion to “all online courses” is evaluated on the same grounds.³⁰¹ First, however, the question of how to define “online course” needs to be addressed. Joint Educators contend that the colloquial definition is evolving, and that an enrollment component need not be a feature of an “online course.”³⁰² But Media Education Lab suggests defining an “online course” by whether users have to register for the course, such as through a Facebook login.³⁰³ For their part, opponents recommend preserving

works in order to further their learning in circumstances where it would be unreasonable to require permission. But, as always, care must be taken not to allow too much educational use, lest we undermine the goals of copyright by enervating the incentive for authors to create the works upon which students and teachers depend.”) (citation omitted); *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 450 (1984) (“Even copying for noncommercial purposes may impair the copyright holder’s ability to obtain the rewards that Congress intended him to have.”).

²⁹⁹ 2015 Recommendation at 109 (citing 2012 Recommendation at 163); *see also* 2010 Recommendation at 224; 2006 Recommendation at 74; 2003 Recommendation at 132.

³⁰⁰ Joint Creators II Class 1 Opp’n at 23.

³⁰¹ *See generally* Joint Filmmakers Class 1 Initial at 10–15; FI, IDA & KF Reply 7–10.

³⁰² Tr. at 299:14–300:06 (Apr. 11, 2018) (Decherney, Joint Educators); *see also* Tr. at 295:13–20 (Apr. 11, 2018) (Decherney, Joint Educators) (“But what is an online course is something that’s obviously changing and expanding through places like edX and Coursera and Udacity. They’re actually expanding in the other direction now, offering larger, full online degree programs. They are also offering smaller and more modular courses, things that are shorter, that might only take a week rather than a full semester.”).

³⁰³ Tr. at 297:07–08 (Apr. 11, 2018) (Hobbs, Media Educ. Lab).

the existing limit to officially enrolled students at accredited non-profit educational institutions, and suggest that would exclude registration through Facebook.³⁰⁴

While acknowledging the growth and importance of online education, in granting the existing exemption in 2015 the Register agreed that an “‘unbounded exemption’ where ‘[a]nybody can declare that they’re teaching a MOOC’ and ‘anyone can be a student’” would be “anathema to the exemption process as envisioned by Congress.”³⁰⁵ As in 2015, Joint Educators’ current “broadly framed proposal would seemingly encompass any online video that could be characterized as an educational experience.”³⁰⁶ Moreover, the record is very sparse on examples of “online courses” that lack enrollment features and/or could not be considered a MOOC, but also use motion picture clips.³⁰⁷ Accordingly, the record does not justify expansion to “all online courses.”

Considering more narrowly whether the exemption should be expanded to include MOOCs offered by for-profit and unaccredited educational institutions, Joint Educators contend that the proposed additional uses are fair because they are identical to those under the existing MOOCs exemption.³⁰⁸ Specifically, they reference two MOOCs currently developed by Professor Decherney at University of Pennsylvania and Professor Abulor at Princeton University, and note that although the existing exemption permits circumvention to offer these MOOCs at accredited nonprofit institutions, it does not allow these same MOOCs to be offered at unaccredited or for-profit institutions.³⁰⁹ In response, DVD CCA and AACCS LA argue that Joint Educators failed to support their assertion that including for-profit and unaccredited educational institutions likely

³⁰⁴ Tr. at 298:22–299:13 (Apr. 11, 2018) (Williams, Joint Creators II); Tr. at 300:24–301:01 (Apr. 11, 2018) (Taylor, DVD CCA). Whether a student is “officially enrolled” in a MOOC depends upon an institution’s enrollment policies and is thus a factual determination. Although the Acting Register agrees that a MOOC by definition is “massive,” she makes no judgment as to whether any particular form of enrollment constitutes “enrollment.”

³⁰⁵ 2015 Recommendation at 72 (citing Tr. at 119:18–121:16 (May 27, 2015) (Turnbull, DVD CCA & AACCS LA); Tr. at 129:03–130:24 (May 27, 2015) (Williams, Joint Creators)).

³⁰⁶ 2015 Recommendation at 102. For example, Joint Educators repeatedly reference models, like Khan Academy, which popularize videos through YouTube. See Joint Educators Class 1 Initial at 2, 5, 7–8. There is no record, however, suggesting those models desire or need to incorporate motion picture clips originally created for entertainment value in their educational offerings.

³⁰⁷ Joint Educators Class 1 Initial at 7. Joint Educators also reference a Harvard University professor maintaining a “webpage” that “contains a collection of YouTube clips of popular movies and television episodes” to illustrate mathematical concepts. *Id.* As DVD CCA and AACCS LA note, the Harvard professor does not appear to be offering his “webpage” as a MOOC. DVD CCA & AACCS LA Class 1 Opp’n at 32 n.79.

³⁰⁸ Joint Educators Class 1 Initial at 10.

³⁰⁹ *Id.* at 7.

constitutes fair use.³¹⁰ They suggest the record lacks any examples of for-profit or unaccredited educational institutions wanting to offer MOOCs, suggesting the expansion would cover only speculative uses.³¹¹ Finally, they suggest that Joint Educators II do not themselves represent the interests of for-profit and/or unaccredited educational institutions in this rulemaking, noting that the entities named by proponents (e.g., University of Phoenix, Full Sail University, Strayer College, Khan Academy, and Lynda) did not participate in the rulemaking.³¹² Proponents do not offer any additional examples of proposed uses in their reply.

The Acting Register agrees that the record lacks examples sufficient to evaluate or recommend expansion to for-profit or unaccredited educational institutions. In the 2015 rulemaking, a group of educators similarly argued that for-profit uses are not necessarily precluded from being fair uses,³¹³ but the then-existing record—similar to this current rulemaking—did not include examples of proposed uses in connection with MOOCs operated on a for-profit basis.³¹⁴ Accordingly, the Register limited the fair use assessment to MOOCs offered by nonprofit accredited educational institutions, and similarly limited the current temporary exemption.³¹⁵ Just as the 2015 record did not support the inclusion of MOOCs offered by for-profit and/or unaccredited institutions, neither does the current record.

iii. Filmmaking

The 2015 rulemaking identified fair use as the noninfringing basis for this exempted use, and the proposed expansion is evaluated on the same grounds.³¹⁶ Proponents now provide multiple examples of non-documentary films using short motion picture clips for parody or for the clip’s biographical or historical significance, ostensibly to provide criticism or commentary. These include a film combining a script with live public presentations to explore the struggles of Jewish artists in 1930s and 1940s Germany and those of contemporary artists (using clips of the featured artists’ performances);³¹⁷ a film “commenting on the historical world as it is perceived by a person living in

³¹⁰ DVD CCA & AACCS LA Class 1 Opp’n at 32.

³¹¹ *Id.* (citing Joint Educators Class 1 Initial at 10).

³¹² *See id.* at 31.

³¹³ 2015 Recommendation at 37 (citing Dercherney, et al. 2015 Class 3 Reply at 6–7).

³¹⁴ *Id.* at 37.

³¹⁵ *Id.* at 75–76. DVD CCA and AACCS LA observe that “uses made by commercial enterprises are evaluated differently in determining whether a use is fair when the activity is for alleged educational purposes.” DVD CCA & AACCS LA Class 1 Opp’n at 32 n.80.

³¹⁶ *See generally* FI, IDA & KF Reply 7–10; Joint Filmmakers Class 1 Initial at 10–15.

³¹⁷ Joint Filmmakers Class 1 Initial at 17.

contemporary times” (using footage of Adolf Hitler);³¹⁸ a dramatic film regarding the historical attempted assassination of President Reagan, from the viewpoint of the shooter’s family and lawyers (using clips from *Taxi Driver*, which influenced John Hinckley, Jr.’s assassination attempt);³¹⁹ a biographical film regarding Steve Jobs (using a clip of the “1984” Apple computer advertisement, which played a “key role” in the film);³²⁰ a dramatic film regarding the serial killer Richard Ramirez (using historical news footage);³²¹ and a parody of the 1993 classic *Mrs. Doubtfire* purporting to show the “absurdity of the film’s premise” (using clips from *Mrs. Doubtfire*).³²² In addition, Joint Filmmakers provide numerous other examples of narratives films for which filmmakers desire to engage in criticism and comment.³²³

Proponents contend that in evaluating the proposed uses, the focus should be on the specific use of the clip—and not the genre of film in which the clip appears—as clips can be used to provide comment or criticism in a transformative way, even if the film’s overall purpose is for entertainment.³²⁴ Proponents observe that “nondocumentary films are created for reasons other than just entertainment,” such as raising social awareness.³²⁵ Proponents point to parody as a transformative use of motion picture clips in non-documentaries, noting also that although commerciality may weigh against a finding of fair use, it does not presumptively do so.³²⁶ In addition, proponents observe

³¹⁸ FI, IDA & KEF Class 1 Reply at 9.

³¹⁹ Joint Filmmakers Class 1 Initial at App. F.

³²⁰ *Id.* at 11; see also *The Wrap, How ‘Steve Jobs’ Used Apple’s Super Bowl Ad without Permission*, STARTRIBUNE (Oct. 13, 2015), <http://m.startribune.com/variety/movies/332251172.html?section=/variety>.

³²¹ Joint Filmmakers Class 1 Initial at App. O.

³²² *Id.* at 16, App. G.

³²³ *Id.* at 16–20, Apps. C–L, N–P, R; FI, IDA & KEF Class 1 Reply at 8–10. FI, KF, and IDA list many of these examples in chart form. Tr. at 116:08–12, Hearing Ex. 1-J at 2–4 (Apr. 24, 2018) (FI, KF & IDA) (appendix of adverse effects).

³²⁴ Joint Filmmakers Class 1 Initial at 12–13 (citing *Wade Williams Distrib., Inc. v. Am. Broad. Co.*, 2005 WL 774275 at *9 (S.D.N.Y. Apr. 5, 2005)); see also FI, IDA & KEF Class 1 Reply at 7 (“the overall purpose of a film genre is not determinative of a filmmaker’s ability to comment and critique”); Tr. at 92:12–16 (Apr. 11, 2018) (Donaldson, Joint Filmmakers) (noting that in last three years his law firm worked on sixty-five non-documentary films engaging in fair use, being insured, and released to public).

³²⁵ FI, IDA & KEF Class 1 Reply at 13–14 (discussing examples of *Spotlight* (depicting journalists exposing abuse by Catholic priests), the 1977 miniseries *Roots* (depiction and impact of slavery), and *Philadelphia* (discrimination against individuals living with AIDS)).

³²⁶ Joint Filmmakers Class 1 Initial at 13 (citing *Campbell*, 510 U.S. at 570); see also *Campbell*, 510 U.S. at 579, 584 (noting “parody has an obvious claim to transformative value” and discussing how some commercial uses may nonetheless be fair).

that the Register has previously found that noncommercial videos frequently make noninfringing use of fictional content, and “[s]imilarly, narrative filmmakers want to use motion picture clips to make their works transformative.”³²⁷ Finally, proponents note the growing genre of “hybrid” films, which incorporate documentary and fictional elements, suggesting that such blending makes it more difficult to identify true “documentaries” in which use of motion picture clips would constitute fair use.³²⁸ For example, Professor Aufderheide identified the film *The Act of Killing* as a hybrid film,³²⁹ which examines how after the Indonesian government was overthrown by the military in 1965, Anwar Congo and his friends went from “small-time gangsters” to death squad leaders helping the army target and kill more than one million communists, ethnic Chinese, and alleged leftists.³³⁰ The real-life Anwar Congo and his friends developed fictional scenes for the film about their experience of the killings—writing the scripts themselves, and playing themselves and their victims in the film—and adapted the scenes to their favorite film genres “not to provide testimony for a documentary,” but to “star in the kinds of films they most love.”³³¹

Opponents maintain that proponents have failed to develop a record of likely noninfringing uses to support extension of the exemption to non-documentary films.³³² They contend that proponents’ examples seem not to be for criticism or comment, but rather to “provide theme,”³³³ “provide scope and assist in portraying the age,”³³⁴ “provide historical context,”³³⁵ “flesh out [characters’] motivations,”³³⁶ or “further the story line.”³³⁷ For example, opponents suggest the *Mrs. Doubtfire* parody example “is actually a satire” and thus infringing, as it pokes fun not so much at *Mrs. Doubtfire* but

³²⁷ FI, IDA & KEF Class 1 Reply at 13.

³²⁸ See Tr. at 175:04–14 (Apr. 11, 2018) (Welsh, FI); Tr. at 136:10–19 (Apr. 11, 2018) (Aufderheide, Am. Univ.); see also Filmmaker Staff, *Cinema Eye Honors Announces 2016 Heterodox Award Nominees*, FILMMAKER MAGAZINE (Nov. 18, 2015), <https://filmmakermagazine.com/tag/heterodox-award/> (discussing Heterodox Award, created to recognize “narrative fiction film that imaginatively incorporates nonfiction strategies, content and/or modes of production”).

³²⁹ Tr. at 136:13–19 (Apr. 11, 2018) (Aufderheide, Am. Univ.).

³³⁰ *Synopsis*, THEACTOFKILLING.COM, <http://theactofkilling.com/synops/> (last visited Sept. 27, 2018).

³³¹ *Id.*

³³² DVD CCA & AACS LA Class 1 Opp’n at 13; Joint Creators II Class 1 Opp’n at 11–12.

³³³ DVD CCA & AACS LA Class 1 Opp’n at 16.

³³⁴ *Id.*

³³⁵ *Id.*

³³⁶ Joint Creators II Class 1 Opp’n at 11.

³³⁷ *Id.*

the absurdity of the characters and their relationship.³³⁸ Opponents observe that the Register previously determined that use of short motion picture clips in non-documentaries is “less likely to warrant a finding of fair use.”³³⁹ Finally, DVD CCA and AACS LA argue generally that the examples of proposed uses are not transformative because they are for entertainment purposes,³⁴⁰ while Joint Creators II acknowledge that use of motion picture clips in “entertaining, scripted films” may sometimes constitute fair use.³⁴¹

After careful review of this expanded record, the Acting Register observes that a number of examples of uses offered by proponents for non-documentaries appear to be related to criticism or comment, similar to uses in documentary films. Although the use of motion picture clips in non-documentaries “diverges from educational uses and uses in documentaries because there is no presumption that their primary purpose is to offer criticism or commentary, as opposed to being included for entertainment purposes,”³⁴² that distinction does not bar a finding of fair use.³⁴³ In 2015, while noting that it may be possible for narrative films to incorporate motion picture clips for purposes of criticism and comment, the Register concluded that the then-existing record failed to support the contention that the proposed uses in non-documentary films were likely to be noninfringing.³⁴⁴ In this proceeding, however, proponents have provided many additional examples of non-documentaries where uses of clips appear favored. Given

³³⁸ DVD CCA & AACS LA Class 1 Opp’n at 15.

³³⁹ Joint Creators II Class 1 Opp’n at 9 (citing 2015 Recommendation at 79; 2012 Recommendation at 130).

³⁴⁰ DVD CCA & AACS LA Class 1 Opp’n at 14, 17.

³⁴¹ Joint Creators II Class 1 Opp’n at 10 n.8.

³⁴² 2015 Recommendation at 79.

³⁴³ See, e.g., *Arrow Prods. v. Weinstein Co. LLC*, 44 F. Supp. 3d 359 (S.D.N.Y. 2014) (finding fair use where four minutes of film used in recreating scenes to provide behind-the-scenes depiction of film); *Wade Williams Distrib., Inc.*, 2005 WL 774275, at *12 (finding fair use where three-second movie clip used in episode of “Good Morning America” discussing alien films as transformative comment on how filmmakers have portrayed aliens); *Sofa Entm’t, Inc. v. Dodger Prods., Inc.*, 709 F.3d 1273 (9th Cir. 2013) (finding fair use where seven-second clip of Ed Sullivan’s introduction of the Four Seasons on “The Ed Sullivan Show” was used in a musical about the Four Seasons, because its use was transformative in evidencing the band’s enduring prominence in American music despite “British Invasion”). But see *TCA Television Corp. v. McCollum*, 839 F.3d 168, 180 (2d Cir. 2016) (“[T]he focus of inquiry is not simply on the new work, i.e., on whether that work serves a purpose or conveys an overall expression, meaning, or message different from the copyrighted material it appropriates. Rather, the critical inquiry is whether the new work uses the copyrighted material itself for a purpose, or imbues it with a character, different from that for which it was created.”) (finding use was not fair).

³⁴⁴ 2015 Recommendation at 79.

the changed record and testimony regarding emerging genre trends, the Acting Register concludes that this factor ultimately weighs in favor of fair use. As discussed further below, and like the current exempted uses for documentary films and noncommercial remix videos, however, this conclusion is tailored to those films that use clips for purposes of criticism and comment specifically, and does not constitute a statement about the incorporation of motion picture clips into other films more generally.³⁴⁵

Addressing the second fair use factor, proponents assert that it “is not dispositive of fair use.”³⁴⁶ As noted above, the Acting Register agrees that the second factor is of limited value. Even though motion pictures are creative and thus at the core of copyright’s protective purposes, because a number of proponents’ examples of proposed use advance a favored purpose, the second factor carries little weight.³⁴⁷

Regarding the third fair use factor, because the proposed exemption would not eliminate the “short portions” limitation, proponents maintain that this factor weighs in favor of fair use.³⁴⁸ The Acting Register agrees.

Turning to the fourth factor, proponents argue that expansion of the exemption to non-documentaries will not negatively affect the market for motion pictures. Joint Filmmakers note that “the Register has previously concluded that ‘use of a motion picture clip for purposes of documentary commentary or criticism is unlikely to interfere with the primary or derivative markets for the underlying work’” – and assert that “[t]here is no reason that this would be any different in a non-documentary context.”³⁴⁹

Proponents state that “rightsholders do not have the right to the market for transformative uses of their works” because such uses constitute fair use.³⁵⁰ Accordingly, proponents assert that “licensors have no right to whatever business would be ‘lost’ in such a scenario” because the use constitutes fair use (*i.e.*, a license should not be necessary).³⁵¹ Proponents thus maintain that expanding the exemption

³⁴⁵ *Cf. id.* at 82–83 (finding “a substantial number, though not all” of noncommercial remix videos were likely noninfringing and cautioning that “several of the videos provided as examples may be insufficiently transformative to support a determination of fair use”).

³⁴⁶ Joint Filmmakers Class 1 Initial at 14.

³⁴⁷ *Campbell*, 510 U.S. at 579; *see also* 2015 Recommendation at 70, 78; 2012 Recommendation at 128.

³⁴⁸ Joint Filmmakers Class 1 Initial at 14–15.

³⁴⁹ *Id.* at 15; *see* 2015 Recommendation at 78.

³⁵⁰ Joint Filmmakers Class 1 Initial at 15 (citing *Campbell*, 510 U.S. at 591).

³⁵¹ FI, IDA & KEF Class 1 Reply at 5; *see also* Tr. at 151:10–12 (Apr. 11, 2018) (Lerner, Joint Filmmakers) (“If I make fair use and I do it appropriately, . . . a rights holder does not have the right to say [I] need a license to that.”).

will not affect the licensing market.³⁵² In addition, proponents state that they “are not aware of any evidence, or even a single allegation, that the [current documentary] filmmakers’ exemption has resulted in any harm to the market for copyrighted motion pictures,”³⁵³ and that opponents have “never offered evidence that the exemption has affected that market in any way” despite consistently warning of abuses.³⁵⁴

Finally, as discussed further below in connection with adverse effects, Joint Filmmakers dispute that there is a licensing market for many of the proposed uses, particularly for individual users or smaller budget projects.³⁵⁵ They point out that Universal Studios needed to rely on fair use to use the well-known “1984” Apple computer advertisement, which played a key role in the film *Steve Jobs*, because the Jobs heirs “hated” the direction the film was taking.³⁵⁶ Similarly, Joint Filmmakers submit an appendix with eight redacted examples of standard clip licensing agreements with studios or production companies including Sony, Fox, CBS, ABC, and NBC Universal, and Miramax that contain non-disparagement clauses limiting the manner in which the licensed clip can be used.³⁵⁷ Such clauses, according to proponents, may prevent filmmakers from transforming, manipulating, or changing the clip.³⁵⁸ For example, proponents note that a licensing agreement used by Miramax Media Group “prohibits the licensee, after having paid exorbitant fees, from being critical of anything surrounding the clip, or in other words, from making fair use.”³⁵⁹

In response, opponents assert that the proposed uses would negatively impact the clip licensing market for motion pictures because “unlicensed uses harm that market.”³⁶⁰ Opponents maintain that licenses are “readily available for using short portions of motion pictures,”³⁶¹ and point to websites offered by Universal, Paramount, CNN, and

³⁵² Joint Filmmakers Class 1 Initial at 25.

³⁵³ *Id.* at 15.

³⁵⁴ FI, IDA & KEF Class 1 Reply at 5.

³⁵⁵ EFF, NMR & OTW Class 1 Reply at 6.

³⁵⁶ FI, IDA & KEF Class 1 Reply at 6; Joint Filmmakers Class 1 Initial at 11, App. S.

³⁵⁷ Joint Filmmakers Class 1 Initial at App. T (*e.g.*, “none of the [licensed] Footage will be used in a manner which would be derogatory to or critical of the program from which the Footage was taken or to the persons involved with the production of the program from which the Footage was taken”).

³⁵⁸ FI, IDA & KEF Class 1 Reply at 9–10; *see also* Tr. at 169:06–14 (Apr. 11, 2018) (Wertheimer, Authors All. & OTW).

³⁵⁹ FI, IDA & KEF Class 1 Reply at 7.

³⁶⁰ Joint Creators II Class 1 Opp’n at 12; *see also* DVD CCA & AACCS LA Class 1 Opp’n at 17.

³⁶¹ Joint Creators II Class 1 Opp’n at 14.

NBCUniversal through which clips may be licensed.³⁶² Opponents contend that “MPAA members actively exploit the market for licensing film clips for these types of uses,” and “license, collectively, thousands of clips for use in a variety of works, including TV shows, fictional films, and documentaries.”³⁶³ Opponents also maintain that “[c]lip licensing remains a growing segment of creators’ derivative market for their copyrighted works,”³⁶⁴ that the “market for clip licensing has even attracted new entrants including public television stations,” and that “it is clear that unlicensed uses harm that market.”³⁶⁵

The Acting Register concludes that this factor does not preclude a limited expansion of the exemption. While opponents have demonstrated that there is an active clip-licensing market for motion pictures, the class includes many examples appearing to be critical uses of motion picture clips in non-documentaries for parody or to comment upon a clip’s biographical or historical significance. Requiring a filmmaker “who is making fair use of a work to obtain a license is in tension with the Supreme Court’s holding that rightsholders do not have an exclusive right to markets for criticism or comment of their copyrighted works.”³⁶⁶ By that token, the record indicates that in many cases where clips would be used for comment or criticism, there may be no effective market for licensed clips, due to concerns over the context in which the clip would be used (*i.e.*, criticism). As with the first factor, however, this conclusion would not extend to the use of clips in a manner that infringes the copyright owner’s derivative rights, which would entitle that owner to license—or decline to license—a clip, even at a high price.³⁶⁷

On balance, the analysis reveals that the proposed expansion to include uses of short clips for parody or for their biographical or historically significant nature are likely noninfringing. While the Acting Register makes no judgment as to whether any particular uses submitted by the proponents are in fact fair, the record demonstrates that many of the uses suggested by proponents appear to be for purposes of criticism and comment and thus likely fair. In 2012 and 2015, the rulemaking records lacked examples of non-documentaries making use of preexisting material for purposes of comment in a

³⁶² *Id.* at 13.

³⁶³ *Id.* at 12.

³⁶⁴ DVD CCA & AACCS LA Class 1 Opp’n at 17–18.

³⁶⁵ Joint Creators II Class 1 Opp’n at 12.

³⁶⁶ 2015 Recommendation at 84.

³⁶⁷ See *Fox News Network, LLC v. TVEyes, Inc.*, 883 F.3d 169, 180 (2d Cir. 2018) (“It is of no moment that [defendant] allegedly approached [plaintiff] for a license but was rebuffed: the failure to strike a deal satisfactory to both parties does not give [defendant] the right to copy [plaintiff’s] copyrighted material without payment.”), *petition for cert. filed*, No. 18-321 (U.S. Sept. 12, 2018); *Campbell*, 510 U.S. at 579, 584 (“Evidence of substantial harm to [the market for the original] would weigh against a finding of fair use, because the licensing of derivatives is an important economic incentive to the creation of originals.”).

transformative way.³⁶⁸ For this rulemaking, however, proponents have presented many examples of non-documentary films engaging uses of motion picture clips for criticism and comment in manners that may be fair. In addition, the growing genre of “hybrid” films further distinguishes the current record from those in prior rulemakings.

iv. Multimedia E-Books

The 2015 rulemaking identified fair use as the noninfringing basis for this exempted use, and the proposed expansion is evaluated on the same grounds.³⁶⁹ Proponents assert that the uses of clips for comment or criticism in nonfiction multimedia e-books beyond those offering film analysis, as well as fictional multimedia e-books, are transformative and thus fair.³⁷⁰ Proponents contend that the Register’s prior analysis should not change “simply because an e-book is fictional and/or not directed at film analysis.”³⁷¹

Regarding the first fair use factor, proponents assert that the criticism and comment limitation ensures that nonfiction multimedia e-books generally would give “new meaning” to works and thus be transformative; they suggest “most [would] alter audiovisual material in such a way to give it new meaning.”³⁷² Proponents point to specific examples of nonfiction multimedia e-books, including an e-book critiquing how pregnancy and questions of fertility have been portrayed in a television series (using clips from the television series);³⁷³ an e-book about “the psychology used in certain TV shows” (using clips from the television shows);³⁷⁴ an e-book titled *Show Sold Separately*, which “critiques the phenomenon of how audiences are interacting with movies and TV shows based on preconceived notions before that material is released” (using video clips and imbedded imaged);³⁷⁵ and an e-book titled *Digital Dubliners*, which is a guide to James Joyce’s collection of stories depicting life in Dublin in the early twentieth century titled *Dubliners*, and “uses film clips and other still images to provide historical and cultural context.”³⁷⁶

Regarding fictional multimedia e-books, proponents argue these uses are often transformative because they add meaning or expression to the original work, even if

³⁶⁸ 2015 Recommendation at 81; 2012 Recommendation at 130.

³⁶⁹ See generally Joint Filmmakers Class 1 Initial at 10–15; FI, IDA & KF Reply 7–10.

³⁷⁰ Authors All. et al. Class 1 Initial at 7–15.

³⁷¹ *Id.* at 3.

³⁷² *Id.* at 11–12 (providing example regarding literary professors).

³⁷³ *Id.* at 19.

³⁷⁴ *Id.* at 20.

³⁷⁵ Tr. at 118:20–119:09 (Apr. 11, 2018) (Schofield, Authors All.).

³⁷⁶ Tr. at 119:10–18 (Apr. 11, 2018) (Schofield, Authors All.).

they describe imaginary events or characters.³⁷⁷ According to proponents, these authors “often present characters or a setting from an original work,” but will “often splice clips together in such a way that a new story is being told” to transform the work.³⁷⁸ Proponents assert that “[f]anfiction is an example of types of fictional e-books that would benefit from the proposed exemption,” and is “a transformative form of expression that fits into the fair use doctrine.”³⁷⁹ Proffered examples include author Holdt’s multimedia e-book, which would take characters from one movie and put them in a different movie “universe”;³⁸⁰ author Kirby Ferguson’s multimedia e-book “about the hidden forces that shape our lives”;³⁸¹ and a multimedia e-book based on an “in-universe” musical written by a character in the television series *Supernatural*.³⁸² In addition, proponents suggest that including fictional e-books would be consistent with the existing exemption for noncommercial videos, which includes fictional works.³⁸³

Finally, in recognizing that the excepted uses for e-books under the existing exemption differ from those for noncommercial remix videos in that they include commercial uses, proponents state that “[t]he Register noted that even though many multimedia e-books tend to have a commercial aspect, the short excerpts used for criticism and comment transformed the work to have new meaning enough to satisfy fair use.”³⁸⁴

In response, opponents maintain the record lacks evidence of actual use of a motion picture clip in a fictional e-book or in an “other nonfiction” e-book, and that “[i]n the absence of actual use, evaluating the use is all but impossible.”³⁸⁵ Regarding nonfictional uses, opponents assert that many of the alleged additional uses would qualify under the current “film analysis” limitation.³⁸⁶ Regarding fictional uses, opponents maintain that the fair use analysis is similar to that for filmmaking, and that the creation of fan fiction multimedia e-books “would frequently infringe the right to prepare derivative works.”³⁸⁷ In support, Joint Creators II cite a variety of court opinions concluding that

³⁷⁷ Authors All. et al. Class 1 Initial at 11–12.

³⁷⁸ *Id.* at 12.

³⁷⁹ *Id.* at 9.

³⁸⁰ *Id.* at 18.

³⁸¹ *Id.* at 17.

³⁸² *Id.* at 20–21.

³⁸³ Authors All. et al. Class 1 Reply at 13–14; *see also* Tr. at 104:21–105:15 (Apr. 11, 2018) (Tandy, OTW) (suggesting noncommercial videos exemption would not encompass inclusion of remix videos within a multimedia e-book); Tr. at 122:03–08 (Apr. 11, 2018) (Reid, Authors All.).

³⁸⁴ Authors All. et al. Class 1 Initial at 11 (citing 2012 Final Rule at 65,260, 65,268).

³⁸⁵ DVD CCA & AACS LA Class 1 Opp’n at 21; *see also* Joint Creators II Class 1 Opp’n at 16.

³⁸⁶ Joint Creators II Class 1 Opp’n at 16.

³⁸⁷ *Id.* at 15.

the incorporation of copyrighted material into other fictional works resulted in unauthorized derivative works.³⁸⁸

The reasoning under the second and third factors to exempt the existing e-books uses follows that of this class, generally. Regarding the fourth factor, proponents assert that the expansion “will not disrupt the market of the original borrowed work because the audiovisual clips included in the e-books will be short and will not supplant the original copyrighted work.”³⁸⁹ Proponents also maintain that eliminating the screen-capture references does not alter the fair use analysis, because use of screen-capture technology results in a lower-quality video, such that “readers may be deterred from exploring and acquiring the original work.”³⁹⁰

In response, opponents assert that as with the proposed filmmaking expansion, there will be harm to the clip licensing market if the proposed e-books uses are exempted.³⁹¹ At the same time, however, DVD CCA and AACCS LA maintain that no market currently exists for multimedia e-books.³⁹² But they claim that “if the multimedia e-book market were to ever materialize, other creators such as the studios or even public television would also seek to exploit this market as an opportunity to license their works.”³⁹³

Regarding nonfiction multimedia e-books beyond “film analysis,” the Acting Register concludes that the record sufficiently demonstrates additional proposed uses that are likely fair. Proponents’ examples show a variety of uses of short excerpts in nonfiction multimedia e-books to provide criticism or commentary beyond film analysis. While it is true that a couple of the uses arguably fall under the existing exemption, it appears that these authors would likely not characterize their e-books as involving “film analysis.” When considering the inclusion of clips in works of nonfiction comment or criticism, the brevity and transformative nature of the proposed uses favor an exemption because the proposed users are unlikely to substitute for the original work—and indeed

³⁸⁸ *Id.* at 15–16 (collecting cases).

³⁸⁹ Authors All. et al. Class 1 Initial at 14.

³⁹⁰ *Id.* at 15.

³⁹¹ DVD CCA & AACCS LA Class 1 Opp’n at 30. Similarly, Joint Creators II assert that “[t]here is clearly a market for licensing footage from motion pictures, and it is clear that unlicensed uses harm that market.” Joint Creators II Class 1 Opp’n at 12.

³⁹² DVD CCA & AACCS LA Class 1 Opp’n at 23. Authors Alliance responds that the multimedia e-books market is, in fact, growing and expected to steadily improve. Authors All. et al. Class 1 Reply at 4 (providing examples).

³⁹³ DVD CCA & AACCS LA Class 1 Opp’n at 30; *see also* Tr. at 174:07–08 (Apr. 11, 2018) (Turnbull, AACCS LA) (stating e-book market is “a potential or likely to be developed market”).

opponents did not identify any proposed use that has in the past harmed, or is likely in the future to harm, the market for or value of any copyrighted motion pictures.³⁹⁴

Regarding the proposed fictional uses, however, the Acting Register finds that the record lacks evidence demonstrating a need to expand the current exemption. To be sure, this issue is somewhat difficult to evaluate, as the record includes few examples of fictional e-books.³⁹⁵ But the Register has previously determined that “[t]he use of an earlier work to flesh out characters and motivations in a new work, or to develop a storyline, does not inherently serve the purpose of criticism or comment on the existing work.”³⁹⁶ Proponents’ testimony indicates that many of the proposed fictional uses serve precisely these purposes.³⁹⁷ The proposed fictional e-books appear to involve “in universe” scripts and/or “mashups,” which can constitute unauthorized derivative works, depending upon the work.³⁹⁸ While it may be possible in some circumstances for fan-fiction e-books to incorporate motion picture clips in a transformative way, here,

³⁹⁴ See 2015 Recommendation at 77.

³⁹⁵ Authors All. et al. Class 1 Initial at 18, 21; Tr. at 116:08–12, Hearing Ex. 1-I at 2 (Apr. 24, 2018) (Authors All. et al.); Tr. 72:10–73:12 (Apr. 24, 2018) (Rosenblatt, OTW) (“[T]here are a lot of questions about this rather than concrete examples.”).

³⁹⁶ 2012 Recommendation at 130.

³⁹⁷ See Authors All. et al. Class 1 Initial at 12 (“By using the clips to merely present a setting[,] authors can then introduce new characters or plots to an old world, creating new meaning and adding new expression.”); Tr. at 108:24–109:02 (Apr. 11, 2018) (Tandy, OTW) (testifying that authors want to use clips for purposes of mise-en-scene, to flesh out a narrative, or show something that happened in the past).

³⁹⁸ Authors All. et al. Class 1 Initial at 18, 21; see also *Lucasfilm Ltd. LLC v. Ren Ventures Ltd.*, No. 3:17-cv-07249-RS, slip op. at 9 (N.D. Cal. June 29, 2018) (order granting in part and denying in part motion for partial summary judgement) (finding that defendants’ use of *Star Wars* images and dialogue to promote a game app mimicking a fictional card game appearing in *Star Wars* did not constitute fair use; noting that “[m]ovie franchise owners routinely license intellectual property rights to other businesses to develop movie-related merchandise and products,” and that defendants did not produce evidence to show lack of market harm from their unlicensed use); *Dr. Seuss Enterprises, L.P. v. ComicMix LLC*, No. 16-CV-2779, 2017 WL 6059130 (S.D. Cal. Dec. 7, 2017) (finding no fair use where defendants created a book combining aspects of Dr. Seuss’s works with elements from *Star Trek*; defendants’ work was a “mash-up,” that while transformative, could adversely affect potential market for literary mash-ups including Dr. Seuss’s works); *Paramount Pictures Corp. v. Axanar Prods., Inc.*, No. 2:15-cv-09938, 2017 WL 83506 (C.D. Cal. Jan. 3, 2017) (finding “prequel” for *Star Trek* movie was not fair use); *Warner Bros. Entm’t Inc. v. RDR Books*, 575 F. Supp. 2d 513 (S.D.N.Y. 2008) (finding no fair use where defendant sought to publish an “encyclopedia” of details from the *Harry Potter* series). The Acting Register concludes that the record lacks sufficient information to evaluate Kirby Ferguson’s multimedia e-book “about the hidden forces that shape our lives” under fair use. See Authors All. et al. Class 1 Initial at 17.

particularly because the proposed class primarily concerns unedited clips, the Acting Register cannot conclude as a categorical matter that the uses likely would be found transformative.³⁹⁹ Finally, although proponents maintain that “most” fanfiction e-books are noncommercial,⁴⁰⁰ both proponents and opponents resisted having any proposed expansion to fictional e-books limited to noncommercial uses.⁴⁰¹ Accordingly, the commercial nature of the proposed uses does not aid a finding that the uses are likely fair.⁴⁰² Considering the fourth factor specifically, the Acting Register has previously determined that “use of an earlier work or works as the basis for a new work could give rise to a concern that the new use might supplant the derivative market for the existing work.”⁴⁰³

It is important to note, however, that inserting a noncommercial remix video into a (noncommercial) multimedia e-book—where the remix video itself complies with the existing noncommercial video exemption—would merely be using a different medium in which to deliver these remix videos.⁴⁰⁴ The Acting Register finds the exempted use for noncommercial videos in the current exemption may thus be sufficiently broad to cover this proposed use, assuming all requirements of the existing noncommercial video exemption are met.

After considering the factual record and relevant law, the Acting Register concludes that many of the proposed uses of motion picture clips for purposes of criticism or comment in nonfiction multimedia e-books beyond those offering film analysis are likely to be a fair use, but that the same conclusion does not extend to fictional multimedia e-books.

³⁹⁹ This is in contrast to the existing exemption for noncommercial remix videos, where the videos themselves are altered in a transformative manner, and the uses are uniformly noncommercial.

⁴⁰⁰ Authors All. et al. Class 1 Reply at 13.

⁴⁰¹ See Tr. at 124:14–125:11 (Apr. 11, 2018) (Lerner, Authors All. & OTW) (stating that adding a noncommercial limitation for fiction multimedia e-books would disincentivize creators); Tr. at 143:22–24 (Apr. 11, 2018) (Williams, Joint Creators II) (“there could be all kinds of uses that are non-commercial that would still harm . . . and that would still be infringing uses”).

⁴⁰² *TVEyes*, 883 F.3d at 178 (citing *Campbell*, 510 U.S. at 579, 585) (“The commercial nature of a secondary use weighs against a finding of fair use . . . especially when . . . the transformative character of the secondary use is modest.”); *Harper & Row, Publs. v. Nation Enters.*, 471 U.S. 539, 562 (1985) (stating that the “fact that a publication [is] commercial as opposed to nonprofit is a separate factor that tends to weigh against a finding of fair use”).

⁴⁰³ 2012 Recommendation at 130.

⁴⁰⁴ See Authors All. et al. Class 1 Reply at 14; see also Tr. at 104:21–105:15 (Apr. 11, 2018) (Tandy, OTW); Tr. at 122:03–08 (Apr. 11, 2018) (Reid, Authors All.).

e. Causation

The Acting Register finds that proponents have met their burden of showing that the statutory prohibition on circumvention of access controls limits their ability to engage in the proposed uses. But for the prohibition, users likely could gain lawful access to the copyrighted motion pictures for those purposes.

To be sure, in the case of multimedia e-books specifically, DVD CCA and AACSLA contend that technological limitations on file size and digital storage capacity—not TPMs—are preventing the creation of multimedia e-books.⁴⁰⁵ As noted by the Register in 2015, however, any “technical limitations of the medium (*i.e.*, maximum file sizes) will seemingly limit the uses of the excerpted works to relatively brief segments,”⁴⁰⁶ but not bar the creation of multimedia e-books completely.

f. Asserted Adverse Effects and Statutory Factors

i. Universities and K-12 Educational Institutions

Proponents argue that the statutory factors set forth in section 1201(a)(1) favor the expanding the exemption. But as with their fair use arguments, proponents focus mostly on proposed uses under section 110(1) that would allow for the full-length performances of motion pictures in face-to-face teaching. Specifically, proponents assert that “instructors and pupils are adversely affected in their ability to make noninfringing uses of more than ‘short portions’ of motion pictures under the classroom exemption” due to the language of the current exemption.⁴⁰⁷

With respect to first factor, BYU states that “to make noninfringing performances under the classroom exception, instructors or pupils must have access to licensed decryption and playback devices in the classroom.”⁴⁰⁸ Proponents maintain, however, that “fewer and fewer classrooms will be equipped with such licensed decryption and playback devices”⁴⁰⁹ because the “unmistakable industry trend” is moving away from DVD and Blu-ray discs (and thus optical readers), and towards streaming media and digital downloads.⁴¹⁰ For example, BYU has decided not to replace licensed decryption and

⁴⁰⁵ DVD CCA & AACSLA Class 1 Opp’n at 25–26; *see also* Tr. at 189:20, Hearing Ex. 1-B (Apr. 11, 2018) (DVD CCA) (demonstrating that multimedia e-books created with iBooks Author cannot exceed two gigabytes).

⁴⁰⁶ 2015 Recommendation at 77.

⁴⁰⁷ *See* BYU Class 1 Initial at 3.

⁴⁰⁸ *Id.*

⁴⁰⁹ *Id.*

⁴¹⁰ BYU Class 1 Reply at 7; *see also* Public Knowledge Class 1 Reply at 2.

playback devices as “they age out over the next several years.”⁴¹¹ Proponents contend that even if optical readers are available in the marketplace, the cost to purchase “a Blu-ray player for each classroom is prohibitive and would be an extreme hardship.”⁴¹²

Regarding shorter uses of motion pictures, proponents maintain that relying on DVD and Blu-ray discs to play motion pictures in a classroom comes with a “social cost” of wasted time while the teacher has to “cue up” the motion picture.⁴¹³ LCA states that “having the clip compilation will make it much faster to navigate, as opposed to trying to zip back and forth” within a DVD.⁴¹⁴

Proponents reject screen capture technologies, lower forms of images, and licensed uses as viable alternatives to circumvention. For example, they argue that screen capture, because it results in a static recording, does not allow teachers to add subtitles and/or commentary to assist with their teaching.⁴¹⁵ As noted above, BYU suggests that the references to screen-capture technologies in the existing exemption relating to educational uses are confusing and sometimes contradictory, and should thus be eliminated.⁴¹⁶ BYU suggests that streaming media providers do not offer the “obscure” motion pictures needed for classroom use, and streaming services permit only personal use (not public performances in educational settings).⁴¹⁷

In response, opponents argue that the basis for proponents’ request is not caused by TPMs, but rather by BYU’s own decision to stop supplying its classrooms with optical readers.⁴¹⁸ Opponents dispute that optional readers are not available in the marketplace, stating that a “quick” marketplace check shows DVD players and Blu-ray players available for as low as \$29.99 and for \$69.99, respectively.⁴¹⁹ They note that BYU would need to possess at least some players and disc drives to circumvent CSS or AACS technology.⁴²⁰ Opponents also observe that because BYU’s decision not to replace optical readers will “apparently not be implemented for ‘several years,’” BYU has failed

⁴¹¹ BYU Class 1 Initial at 3–4.

⁴¹² BYU Class 1 Reply at 10–11; *see* Tr. at 272:20–25 (Apr. 11, 2018) (Hobbs, Media Educ. Lab).

⁴¹³ Tr. at 268:04–14, 268:22–269:03 (Apr. 11, 2018) (Midgley, BYU).

⁴¹⁴ Tr. at 252:13–17 (Apr. 11, 2018) (Band, LCA).

⁴¹⁵ Tr. at 253:03–06 (Apr. 11, 2018) (Band, LCA).

⁴¹⁶ BYU Class 1 Initial at 5; *see* 37 C.F.R. § 201.40(b)(1)(iv)–(viii) (2016).

⁴¹⁷ BYU Class 1 Reply at 12; *see also* Tr. at 303:24–304:01 (Apr. 11, 2018) (Midgley, BYU) (stating that movie *Moana* is not available through Netflix in Tahitian).

⁴¹⁸ DVD CCA & AACS LA Class 1 Opp’n at 9 (“[A]ll that is necessary is a DVD or Blu-ray player and a television screen. No circumvention is necessary.”); Joint Creators II Class 1 Opp’n at 21.

⁴¹⁹ DVD CCA & AACS LA Class 1 Opp’n at 12.

⁴²⁰ *Id.*; Tr. at 275:02–09 (Apr. 11, 2018) (Turnbull, AACS LA).

to identify “a substantial adverse effect that is likely to occur within the next three years.”⁴²¹

Moreover, opponents maintain that BYU has “failed to establish a record to demonstrate there is any content that can only be accessed via discs,”⁴²² and note that a variety of ways exist in the marketplace for accessing digital copies, such as redeem codes; digital copies available for rental or long-term access; access through Movies Anywhere and UltraViolet; streams available through Hulu, Netflix, Amazon Video, YouTube Red; and permanent downloads available through Apple iTunes and Google Play.⁴²³

The Acting Register concludes that the record shows that a limited expansion likely would increase the availability of copyrighted works for certain uses of motion picture clips. For example, proponents gave the example of teachers creating compilations of clips from foreign language films with and without subtitles.⁴²⁴ Further, as in prior rulemakings, the testimony shows a need for educators to compile clips in advance, to maximize classroom time and avoid attention lagging when queuing up clips. The record also demonstrates that screen capture may not be an adequate alternative for certain educational uses⁴²⁵ and that modern students use media differently and have higher expectations of digital media.⁴²⁶ In addition, the Acting Register notes that confusion over whether the exemption applies, if it results in teachers opting not to use motion picture clips for educational purposes, may adversely affect teaching and education.⁴²⁷ Overall, the first factor supports expanding educational use under the exemption.

⁴²¹ Joint Creators II Class 1 Opp’n at 21.

⁴²² *Id.*

⁴²³ *Id.* at 23.

⁴²⁴ Tr. at 242:10–20, Hearing Ex. 1-E (Apr. 11, 2018) (Midgley, BYU).

⁴²⁵ See Tr. at 253:03–06 (Apr. 11, 2018) (Band, LCA) (stating that screen capture does not reasonably permit teachers to add subtitles and/or commentary to assist with their teaching).

⁴²⁶ See Tr. at 273:15–20 (Apr. 11, 2018) (Hobbs, New Media Lab) (stating that modern students “are using create-to-learn pedagogies, where they’re not just watching, they’re actually remixing and creating. As part of the learning experience, they’re manipulating image, language, and sound”); Tr. at 273:09–11 (Apr. 11, 2018) (Hobbs, New Media Lab) (“[T]he expectation is, all of the digital resources that we need to use should be at our fingertips.”); Tr. at 286:20–23 (Apr. 11, 2018) (Midgley, BYU) (“[O]ne of the goals of this proceeding should be to try to match what’s happening on the ground, what the expectations are of modern students and instructors are when they arrive on campus.”).

⁴²⁷ See BYU Class 1 Reply at 2–3 (noting that the language is “needlessly complex and difficult to interpret, especially for teachers and educational administrator without formal legal training”); Tr. at 220:21–221:05 (Apr. 11, 2018) (Hobbs, Media Educ. Lab) (stating that if teachers do not

The conclusion is different regarding the use of full-length motion pictures. The Acting Register agrees that DVD and Blu-ray players are still widely available on the market. According to a report cited by proponents, disc sales accounted for \$4.7 billion in 2017.⁴²⁸ Extending the exemption to such uses thus could ultimately decrease the availability of motion pictures by undermining the value of the market for works in those formats. Regarding proponents' argument that it would be costly for educational institutions to re-purchase digital versions of lawfully acquired physical audiovisual works, as previously noted, "the 1201 exemption process is meant to ensure that users have access to copyrighted works; it is not meant to guarantee consumers the ability to access content through their preferred method or format."⁴²⁹

Regarding the availability for use of works for educational purposes, and the impact on teaching, scholarship, or research, BYU states that without a more user-friendly expansion, teachers will remain confused as to whether an existing exemption applies to them, and such uncertainty will deter teachers from using motion picture clips, to the detriment of teaching and education.⁴³⁰ Proponents also state that the existing exemption prevents teachers who teach on multiple educational levels from using motion pictures in all of their educational efforts, since the exemption distinguishes who may circumvent based on level of education.⁴³¹ Opponents assert that while the existing exemption "could benefit from some clarification," "proponents greatly exaggerate the regulations' complexity."⁴³²

know whether they can circumvent, this will "impact . . . how the next generation of teachers is taught how to use audio-visual resources effectively for purposes of teaching and learning").

⁴²⁸ BYU Class 1 Reply at 7 (citing Ricardo Lopez, *Disc Sales Decline Deepens in Annual Home Entertainment Spending Report*, VARIETY (Jan. 9, 2018), <http://variety.com/2018/digital/news/home-entertainment-spending2017-1202658638/> (citing Digital Entertainment Group, *DEG Year End 2017 Home Entertainment Report* (Jan. 8, 2018), https://degonline.org/portfolio_page/deg-year-end-2017-home-entertainment-report/)).

⁴²⁹ 2015 Recommendation at 124.

⁴³⁰ See Tr. at 220:21–221:05 (Apr. 11, 2018) (Hobbs, Media Educ. Lab) (stating that if teachers do not know whether they can circumvention, this will "impact . . . how the next generation of teachers is taught how to use audio-visual resources effectively for purposes of teaching and learning"); see also Tr. at 218:02–15 (Apr. 11, 2018) (Band, LCA) ("[T]he existing system is just so complicated that a lot of people just kind of throw their hands up into the air . . . the right approach is to figure out how do we make it easier for people to comply with the law . . .").

⁴³¹ Tr. at 220:21–23 (Apr. 11, 2018) (Hobbs, Media Educ. Lab) (stating that it is "very common for a high-school teacher, a middle-school teacher, to teach also in a university context").

⁴³² Joint Creators II Class 1 Opp'n at 8.

The Register previously determined that the third factor is a “critical consideration” in relation to educational uses.⁴³³ Because the proposed uses seek to enable the listed statutory purposes, this factor weighs in favor of properly crafted exemption to foster such uses.

Regarding the fourth factor, as noted above, brief, educational uses are unlikely to undermine the value of copyright-protected motion pictures. As also noted above, the use of full-length motion pictures, however, would affect the digital motion pictures market.

ii. MOOCs

Joint Educators maintain that without expanding the exempted use of MOOCs, “there is no ability for unaccredited, for-profit, or for-credit online educational offerings to embed noninfringing audiovisual works into their courses or modules without licensing from the copyright owner.”⁴³⁴ In support, they reference two courses currently developed by Professor Decherney at University of Pennsylvania and Professor Abulor at Princeton University, and note that they cannot be offered at unaccredited or for-profit institutions.⁴³⁵ Joint Educators, Associate Professor Anderson, and Professor Aufderheide suggest that “traditional universities offering professional training or certificate programs through fee-for-service branches are unsure” whether their activities are covered, and such uncertainly “may lead to risk-averse choices that compromise potential learning opportunities.”⁴³⁶

Regarding the second and third statutory factors, Joint Educators assert that expansion of the existing exemption “would continue to encourage the innovative, high quality online teaching that continues to evolve at a rapid pace.”⁴³⁷ Joint Educators maintain that the nonprofit and unaccredited limitations in the existing exemption “decrease access to high quality education for students and undermine[] opportunities for professors to collaborate and innovate with varied institutions.”⁴³⁸

Considering the potential effect on the market for copyrighted works, Joint Educators maintain:

⁴³³ See 2015 Recommendation at 94.

⁴³⁴ Joint Educators Class 1 Initial at 13.

⁴³⁵ *Id.* at 7.

⁴³⁶ Joint Educators, Anderson & Aufderheide Class 1 Reply at 3.

⁴³⁷ Joint Educators Class 1 Initial at 6.

⁴³⁸ *Id.* at 7.

Clips copied from works in this context are to be used exclusively for educational purposes, and it is unlikely that those accessing them for other purposes would reuse them. Should it occur, however, reuse of short clips would be unlikely to affect the value of the work from which the clip was sampled, as the clips are limited in duration and not likely to serve as a substitute for the entire work.⁴³⁹

As noted above, opponents suggest that proponents have failed to identify any unaccredited or for-profit institution wanting, but unable, to offer a MOOC because of section 1201.⁴⁴⁰ Opponents assert that none of the institutions named by proponents as allegedly harmed have come forward to “provide evidence that any of its activities is harmed by the circumvention prohibition.”⁴⁴¹ DVD CCA and AACCS LA acknowledge proponents’ example of Professor Decherney being unable to offer his MOOC on Hollywood to a film society,⁴⁴² but note that Joint Educators do “not identify a particular film society that would actually offer this course if the exemption were modified.”⁴⁴³

The Acting Register agrees the record does not demonstrate that section 1201 is inhibiting the use of motion pictures in online education offered by for-profit and/or unaccredited educational institutions. Indeed, proponents note that online education has been growing rapidly notwithstanding the prohibition on circumvention.⁴⁴⁴ There is little to suggest that for-profit or unaccredited institutions wish to offer additional content in MOOCs that they are unable to license.⁴⁴⁵ Further, the two proffered examples appear both *de minimis* and speculative. The record indicates that Professor Abulor has not yet finished creating his MOOC, so questions as to whether he “was to” offer his MOOC through a for-profit and/or unaccredited educational institution⁴⁴⁶ remain purely hypothetical. Professor Decherney’s inability to offer his *Hollywood* MOOC as part of a film society website or through another unaccredited or for-profit institution is also unpersuasive—it appears he can already offer the class to a “wider

⁴³⁹ *Id.* at 13.

⁴⁴⁰ DVD CCA & AACCS LA Class 1 Opp’n at 32 (citing Joint Educators Class 1 Initial at 10) (“Joint Educators concede they have not proffered any examples of use of a motion picture by any other type of MOOC than those offered by accredited nonprofit educational institutions . . .”).

⁴⁴¹ DVD CCA & AACCS LA Class 1 Opp’n at 31.

⁴⁴² Joint Educators Class 1 Initial at 10.

⁴⁴³ DVD CCA & AACCS LA Class 1 Opp’n at 31.

⁴⁴⁴ Joint Educators Class 1 Initial at 5–6.

⁴⁴⁵ See Tr. at 290:10–24 (Apr. 11, 2018) (Decherney, Joint Educators) (confirming that Joint Educators have not communicated with for-profit and/or unaccredited educational institutions to see if they share a need for circumvention to offer MOOCs).

⁴⁴⁶ Joint Educators Class 1 Initial at 7.

range of learners” by making it “massively” available to the public through the University of Pennsylvania’s MOOC, including by linking to this MOOC on the film society’s website.⁴⁴⁷

Ultimately, just as the 2015 record did not support the inclusion of MOOCs offered by for-profit and/or unaccredited institutions, neither does the current record.⁴⁴⁸

iii. Filmmaking

Proponents state that a majority of motion pictures are currently protected by copyright and protected by TPMs and are “thus unavailable to a significant portion of filmmakers for criticism and commentary.”⁴⁴⁹ They argue that the rise of digitally transmitted video therefore makes circumvention of encryption measures necessary to access news clips and other high-quality content to meet the requirements of distributors.⁴⁵⁰

Proponents dispute that either clips created using non-circumventing screen capture technology, or clips obtained via licensing are viable alternatives for the proposed uses. They assert that “all screen capture software programs of which we are aware create dropped frames and loss of audio sync, among other defects.”⁴⁵¹ According to proponents, these defects cannot be fixed by the use of film editing software.⁴⁵² For example, dropped frames “cannot be recovered and are often grounds for automatic disqualification when submitting films.”⁴⁵³ Allegedly, some users who try to use screen capture with Netflix end up with just a black screen rather than any visual content.⁴⁵⁴

In addition, proponents contend that screen-capture technology requires significant time, resources, and special hardware, and is “not financially feasible for many filmmakers,”⁴⁵⁵ as “[f]ree trials have time limits and a filmmaker cannot be constrained

⁴⁴⁷ Joint Educators, Anderson & Aufderheide Class 1 Reply at 3.

⁴⁴⁸ As noted above, the request to exempt “all online courses” is too vague to support a conclusion that the uses are likely noninfringing. This language also potentially implicates the market or value for copyrighted works in ways unanticipated by the current MOOC exemption.

⁴⁴⁹ Joint Filmmakers Class 1 Initial at 10.

⁴⁵⁰ *Id.* at 20–21.

⁴⁵¹ *Id.* at 21; *see also* Tr. at 8:17–23 (Apr. 24, 2018) (Turk, Univ. of Minn., Morris).

⁴⁵² FI, IDA & KEF Class 1 Reply at 10–11 (filmmakers “cannot work with the varying frame rates, unpredictability, and inconsistency that screen capture technologies suffer from”).

⁴⁵³ *Id.*; *see also* Tr. at 194:19–21 (Apr. 11, 2018) (Morrissette, FI) (“Filmmakers today have even more gatekeepers and high technical requirements from distributors than ever before.”).

⁴⁵⁴ Tr. at 18:15–19 (Apr. 24, 2018) (Rosenblatt, OTW).

⁴⁵⁵ Joint Filmmakers Class 1 Initial at 21.

to make their feature film within a time limit as short as thirty days.”⁴⁵⁶ Moreover, when considering film distribution requirements, filmmakers may be asked to go back and obtain the source material if the clips are not high enough quality.⁴⁵⁷

Finally, EFF, NMR and OTW note that screen-capture technologies are not a “safe harbor,” as copyright owners have asserted section 1201 claims against “technologies that appear very similar to those discussed in these proceedings.”⁴⁵⁸

As for obtaining authorization, proponents maintain that licensing clips is not a reasonable alternative because licenses are too difficult to obtain.⁴⁵⁹ In addition to contesting that a license for critical commentary should or could be obtained given non-disparagement clauses or other denials, proponents dispute the practical feasibility of licensing for smaller uses, generally. EFF, NMR and OTW note that Universal’s clip licensing site “clearly states on its front page that it is a ‘business to business’ site,”⁴⁶⁰ seemingly making clip licenses unavailable to individuals.

Opponents respond that both licensing and screen capture technologies serve as valid alternatives to circumvention. MPAA notes that all six of the motion picture studios it represents license motion picture clips, which can be done online, and they can be contacted via email or over the phone.⁴⁶¹ Opponents also assert that “motion pictures are even more broadly available today than they were three years ago for . . . licensing uses.”⁴⁶² MPAA states that the studios license several thousand clips each year, and maintains that none its members have a policy against licensing clips to remix artists, e-book authors, fiction and nonfiction filmmakers, and for educational purposes.⁴⁶³ Joint Creators II acknowledge, however, that licensing may not always be a feasible alternative.⁴⁶⁴ Finally, MPAA contends that if the ability to circumvent TPMs protecting

⁴⁵⁶ FI, IDA & KEF Class 1 Reply at 11; *see also* EFF, NMR & OTW Class 1 Reply at 5.

⁴⁵⁷ Tr. at 26:23–24 (Apr. 24, 2018) (Neill, NMR); *see also* FI, IDA & KEF Class 1 Reply at 11–12.

⁴⁵⁸ EFF, NMR & OTW Class 1 Reply at 6–7. The Acting Register notes that the case referenced does not appear to involve screen capture technology, as it involved a service that converted YouTube videos to mp3 (audio) or mp4 (video) files, and allowed users to download them for free by copying the URL for the YouTube video into the converter and clicking convert button. Complaint at ¶ 1, *UMG Recordings v. PMG Technologies*, 2:16-cv-07210 (C.D. Cal. Sept. 26, 2016); YTMP3 Video Converter, YTMP3, <https://ytmp3.cc> (last visited Sept. 27, 2018).

⁴⁵⁹ Tr. at 137:01–06 (Apr. 11, 2018) (Aufderheide, Am. Univ.).

⁴⁶⁰ EFF, NMR & OTW Class 1 Reply at 6.

⁴⁶¹ Tr. at 80:22–81:02 (Apr. 24, 2018) (Sheffner, MPAA).

⁴⁶² Joint Creators II Class 1 Opp’n at 4.

⁴⁶³ Tr. at 83:13–14, 87:07–10 (Apr. 24, 2018) (Sheffner, MPAA).

⁴⁶⁴ Tr. at 172:07–11 (Apr. 11, 2018) (Williams, Joint Creators II) (acknowledging example of Universal Studios being refused a license for clip of “1984” Apple computer advertisement, and

motion pictures is expanded more and more, the less effective section 1201 becomes in protecting copyrighted works, and the less willing movie studios may be to engage in new licensing practices.⁴⁶⁵

Regarding screen capture, Joint Creators II assert that proponents have “not submitted any evidence to demonstrate that screen-capture is no longer a viable alternative.”⁴⁶⁶ DVD CCA and AACCS LA maintain that screen-capture products “offer a suite of features” and “are offered at various price points,” with some being free or having free trial periods, such as OBS Studio.⁴⁶⁷ DVD CCA and AACCS LA further assert that advances in screen capture technologies “should better serve users of recorded DVD playback that complained about picture quality and frame-loss,”⁴⁶⁸ and that film editing software can improve video imaging with “filters or tools that provide you with options for cleaning up ‘pixilation’ or ‘mosaic noise.’”⁴⁶⁹ In addition, they maintain that screencasting (*i.e.*, digital recording of computer screen output) can be used to “create sophisticated, information-rich multimedia presentations.”⁴⁷⁰

The Acting Register concludes that the record indicates that the overall availability of copyrighted works will not be lessened with an appropriately tailored expansion.⁴⁷¹ The current record suggests that licensing of motion picture clips is not always viable.⁴⁷² As in 2015, the content available for clip licensing is far from complete and, in any event, such licensing is not practicable in many cases, whether due to difficulties in locating the rightsholders, overly lengthy negotiations that preclude planned uses, or denials where the would-be licensor disapproves of the noninfringing use.⁴⁷³ In addition, the record again supports the conclusion that screen-capture technology is at times inadequate for

stating “I’m not saying that licensing is always a feasible alternative. Clearly, in that case where the license was denied, you can’t say that a license was available to be had.”); *see also* Tr. at 81:26–83:01 (Apr. 24, 2018) (Sheffner, MPAA); Tr. at 106:24–107:02 (Apr. 24, 2018) (Lerner, OTW) (contesting availability of licenses to smaller users).

⁴⁶⁵ Tr. at 92:18–25 (Apr. 24, 2018) (Sheffner, MPAA); *see also* Tr. at 94:03–22 (Apr. 24, 2018) (Sheffner, MPAA) (discussing “normalization” of circumventing TPMs protecting motion pictures).

⁴⁶⁶ Joint Creators II Class 1 Opp’n at 26.

⁴⁶⁷ DVD CCA & AACCS LA Class 1 Opp’n at 38.

⁴⁶⁸ *Id.*

⁴⁶⁹ *Id.* at 39 (citation omitted).

⁴⁷⁰ *Id.* at 37 (citation omitted).

⁴⁷¹ *See* 2015 Recommendation at 94.

⁴⁷² *See id.* at 84.

⁴⁷³ *Id.*

the expanded set of filmmaking uses. While screen-capture or screencasting technology has improved, the record generally demonstrates that consumer devices and expectations have at the same time increased.

Joint Filmmakers assert that the proposed expansion would benefit nonprofit archival, preservation, and educational purposes, and criticism, comment, news reporting, teaching, scholarship, or research because “[f]ilms not traditionally classified as ‘documentary’ often serve educational purposes and serve an increasingly important role in educational and social commentary.”⁴⁷⁴ Following the reasoning of the 2015 rulemaking, the Acting Register concludes that because the proposed uses seek to enable the listed statutory purposes, these factors weigh in favor of a properly crafted exemption to foster such uses.⁴⁷⁵

Noting that opponents did not oppose the renewal of the current filmmaking exemption,⁴⁷⁶ proponents maintain that the record lacks evidence showing negative effects on the market for motion pictures, stating that there “has been no effect on sales, no link to privacy [*sic*], no effect on a legitimate licensing market, and certainly no effect on public perception of the business model other than to make it seem less untenable.”⁴⁷⁷ Proponents also assert that the “rightsholders have no claim on the derivative market for criticism of their works because rightsholders are unlikely to desire an additional work criticizing the original work, and have no incentive to develop such markets.”⁴⁷⁸ Rather than preventing filmmakers from engaging in fair use in non-documentaries through an expanded exemption, proponents suggest that the appropriate remedy for erroneous claims of fair use would be to sue for copyright infringement.⁴⁷⁹ Proponents also suggest that advice of counsel and review by media liability insurance underwriters will prevent infringing uses of motion picture clips.⁴⁸⁰

⁴⁷⁴ Joint Filmmakers Class 1 Initial at 24 (non-documentaries may “serve as teaching tools in the classroom because of their portrayal of important historical and contemporary events . . .”); *see id.* (films may “educate the public on important moments in history that would otherwise remain relatively obscure”).

⁴⁷⁵ *See* 2015 Recommendation at 94 (“[T]he impact the prohibition on circumvention has on criticism, comment, news reporting, teaching, scholarship, and research, is a critical consideration in relation to . . . filmmaking . . . offering film criticism . . .”).

⁴⁷⁶ FI, IDA & KEF Class 1 Reply at 5.

⁴⁷⁷ Joint Filmmakers Class 1 Initial at 23.

⁴⁷⁸ *Id.* at 25 (citing *Campbell*, 510 U.S. at 564).

⁴⁷⁹ FI, IDA & KEF Class 1 Reply at 6.

⁴⁸⁰ *Id.* at 7.

In response, opponents acknowledge that they did not oppose the readoption of the existing exemption, but did not do so because they respected the Office’s conclusions, not because no harm is taking place.⁴⁸¹

For the same reasons discussed above in reference to the fourth fair use factor, the Acting Register finds that expanding the exemption to include the use of short clips for parody or to comment upon the clip’s biographical or historical significance is unlikely to adversely affect the market for or value of the motion pictures in the proposed class. The Acting Register concludes that the use of small portions in contexts involving comment or criticism is consistent with principles of fair use and is unlikely to supplant the market for motion pictures. As the Register stated in the 2015 rulemaking, however, filmmakers “must be carefully focused on noninfringing uses so as not to undermine copyright owners’ ability to license portions of motion pictures and other derivative uses outside of the parameters of fair use, including through clip licensing services.”⁴⁸² This observation is particularly important for this class, where there is an established and robust market for licensing of motion picture clips for general storytelling or other entertainment uses that would not be covered by the proposed expansion. The Acting Register accordingly finds that restricting the exemption to the use of clips for parody or for their biographical or historically significant nature to be an important limitation.

iv. Multimedia E-Books

Proponents observe that in 2015 the Register recognized that an exception to circumvent DVDs and Blu-ray Discs would not decrease the availability of copyrighted works, and maintain that expanding the exemption beyond nonfiction e-books offering film analysis likewise will not decrease the availability of copyrighted works.⁴⁸³ Proponents assert that without the requested expansion, multimedia e-book authors will be prevented from obtaining material intended for lawful use because the protected motion pictures are not available in formats without TPMs.⁴⁸⁴

Proponents also maintain that sufficient alternatives to circumvention, such as screen capture and licensing, do not exist.⁴⁸⁵ Similar to arguments against screen capture in the context of filmmaking, proponents assert that screen capture results in “dropped frames, frame rate issues, insufficient resolution, and artifacting,” rendering “the resulting images unusable to use for criticism and commentary.”⁴⁸⁶ They claim that “licensing

⁴⁸¹ Tr. at 162:05–11 (Apr. 11, 2018) (Williams, Joint Creators II).

⁴⁸² 2015 Recommendation at 95.

⁴⁸³ Authors All. et al. Class 1 Initial at 26 (citing 2015 Recommendation at 93–94).

⁴⁸⁴ *Id.* at 25, 27.

⁴⁸⁵ *Id.* at 27.

⁴⁸⁶ *Id.* at 24, 28.

[motion picture clips] is not a viable alternative due to exorbitant fees, difficulties in locating the rightsholders[,], and the delays caused by protracted negotiations.”⁴⁸⁷

In response, opponents assert that “[e]ven if . . . TPMs are causing harm to the ability to use motion pictures in multimedia e-books, there is insufficient evidence of such harm” because the harm must be “distinct, verifiable’ and measurable,” and based on more than *de minimis* impacts.⁴⁸⁸ Opponents also observe that the proffered prospective e-book uses from the 2015 rulemaking, such as the book proposed by Bobette Buster, still have not been made.⁴⁸⁹ Finally, opponents suggest that proponents’ expectation to obtain a license within one business day may be unreasonable.⁴⁹⁰

For similar reasons as with the filmmaking exemption, the Acting Register concludes that expanding the exemption for nonfiction e-books beyond those offering film analysis is unlikely to harm, and may increase, the availability of copyrighted works. The record indicates that, in many cases, neither screen capture technology nor the licensing of motion picture clips are viable alternatives for the uses proposed for criticism and comment.⁴⁹¹ As noted above, while screen-capture technology has improved, the record generally demonstrates that consumer devices and expectations have at the same time increased. Similarly, as many of the nonfiction examples seemingly involve pointed commentary on specific portrayals in television shows or movies, it is not clear that these transformative uses need to be licensed, or that licenses even could be obtained.

Considering the second and third statutory factors, Authors Alliance et al. state that “[m]ultimedia e-books have the ability to provide great educational value to classroom settings,” noting that many “are created specifically as a teaching tool and . . . can be used as a reference and resource, similar to their paper counterparts.”⁴⁹² Authors Alliance et al. also point to the example of the multimedia e-book *Digital Dubliners* as an example showing that the use of video clips in an e-book can “enhance” the study of literature or history.⁴⁹³ They admit that fictional multimedia e-books “offer a lesser degree of educational value but still spur the imagination and promote creativity when used in the classroom”; they accordingly suggest that the second factor “should be

⁴⁸⁷ *Id.* at 4–5; *see also* Tr. at 114:10–16 (Apr. 11, 2018) (Tandy, OTW) (regarding delay in licensing negotiations).

⁴⁸⁸ DVD CCA & AACS LA Class 1 Opp’n at 27, 29 (citing Commerce Comm. Report at 37).

⁴⁸⁹ *Id.* at 27. Mr. Lerner, representing Authors Alliance, testified that Bobette Buster is still working on the multimedia e-book she proposed creating during the 2015 rulemaking. Tr. at 209:07–11 (Apr. 11, 2018) (Lerner, Authors All. & OTW).

⁴⁹⁰ Tr. at 116:04–07 (Apr. 11, 2018) (Williams, Joint Creators II).

⁴⁹¹ 2015 Recommendation at 84.

⁴⁹² Authors All. et al. Class 1 Initial at 28.

⁴⁹³ Authors All. et al. Class 1 Reply at 16.

found neutral to favorable in regard to the proposed modification.”⁴⁹⁴ Finally, they observe that in past rulemakings, the Register found the third factor to be “a critical consideration” for the existing multimedia e-book exemption, as it seeks to enable criticism, comment, teaching and/or scholarship.⁴⁹⁵ Therefore, they argue, this factor weighs “strongly in favor of appropriately tailored exemptions to foster such uses.”⁴⁹⁶

The Acting Register concludes that these factors weigh in favor of an expansion for nonfiction multimedia e-books more generally because the proposed uses will facilitate criticism, comment, teaching and/or scholarship, including as incorporated into educational pedagogy. But the same logic does not hold for fanfiction or other fictional e-books, which the record suggests are typically consumed for entertainment value.⁴⁹⁷ The second and third statutory factors therefore do not favor an exemption covering such works.

Finally, proponents argue that expansion will not negatively impact the market for or value of copyrighted works because the inclusion of clips for purposes of comment or criticism are “transformative uses” of the original work that will not serve as a “market substitution.”⁴⁹⁸ Proponents maintain that fanfiction works are intended to “offer a new perspective on popular narratives.”⁴⁹⁹ Because it would be necessary to understand the underlying work before reading the fanfiction work, Authors Alliance et al. state that “it is extremely unlikely that consumers will buy less of the original work because fanfiction of it exists.”⁵⁰⁰

In response, opponents maintain that expanding the existing exemption to fictional e-books would “harm the creation of a market to license clips of motion pictures to multimedia e-book creators,”⁵⁰¹ and that creating fanfiction multimedia e-books “would frequently infringe the right to prepare derivative works.”⁵⁰²

For nonfiction proposed uses, the Acting Register concludes that the brevity and nature of the proposed uses favor an expansion because they are unlikely to substitute for the

⁴⁹⁴ Authors All. et al. Class 1 Initial at 29.

⁴⁹⁵ *Id.* (citing 2015 Recommendation at 94; 2012 Recommendation at 136).

⁴⁹⁶ *Id.*

⁴⁹⁷ Authors Alliance et al. speculate that future classrooms may study fan-fictional multimedia e-books; while this case may be, it does not support a general conclusion that these factors favor an exemption for fan-fiction uses. *See id.* at 26.

⁴⁹⁸ *Id.* at 30; *see Campbell*, 510 U.S. at 592–94.

⁴⁹⁹ Authors All. et al. Class 1 Reply at 13.

⁵⁰⁰ *Id.*

⁵⁰¹ DVD CCA & AACCS LA Class 1 Opp’n at 30.

⁵⁰² Joint Creators II Class 1 Opp’n at 15.

original work. Regarding the proposed fictional uses, however, because the examples in the record appear likely to use an earlier work or works as the basis for a new work—which might supplant the derivative market for the existing work⁵⁰³—the uses could substitute for the emerging market for clip licensing in multimedia e-books.⁵⁰⁴ Therefore, the fourth statutory factor weighs against an exemption for those works.

Based on the foregoing, the Acting Register concludes that proponents have demonstrated that the prohibition on circumvention is causing an adverse effect on their ability to make noninfringing uses of motion picture clips in nonfiction multi-media e-books beyond those offering film analysis. The Acting Register does not reach such a conclusion with respect to fictional e-books.

3. NTIA Comments

NTIA recommends renewing the current exemption covering educational and derivative uses, and expanding those exempted uses in several respects. Regarding the proposal of a single, overarching exemption for purposes of criticism and comment, NTIA rejects the elimination of all limitations on the types of users or uses because “eliminating all of the categories of specific users . . . would stray too far from the statutory requirement of specificity.”⁵⁰⁵

NTIA does recommend, however, consolidation of exempted educational uses by college and university faculty and students, K-12 educators, K-12 students, and educators and participants in nonprofit digital and media literacy programs.⁵⁰⁶ NTIA asserts that “distinction[s] among educational uses in the regulations ha[ve] no basis in the Copyright Act,”⁵⁰⁷ and that an “educator’s needs are the same and the students’ needs are the same no matter the level of education.”⁵⁰⁸ NTIA proposes that the exempted educational uses be expanded to include “teaching” in addition to criticism and comment, in alignment with section 107.⁵⁰⁹ Although NTIA acknowledges that “no petitioner requested specifically to modify the exemption for digital and media literacy educational programs,” it nevertheless suggests that the expanded educational uses

⁵⁰³ 2012 Recommendation at 130.

⁵⁰⁴ DVD CCA & AACIS LA Class 1 Opp’n at 30.

⁵⁰⁵ Letter from David J. Redl, Assistant Sec’y for Commc’ns & Info. & Adm’r, Nat’l Telecomms. & Info. Admin., U.S. Dep’t of Commerce, to Karyn A. Temple, Acting Register of Copyrights and Dir., U.S. Copyright Office, at 10 (Sept. 25, 2018) (“NTIA Letter”).

⁵⁰⁶ *Id.*

⁵⁰⁷ *Id.*

⁵⁰⁸ *Id.* at 11.

⁵⁰⁹ *Id.* at 9.

should include these programs.⁵¹⁰ As noted below, the Acting Register cannot recommend expanding the exemption beyond examples supported by the legal or factual record.

With respect to BYU's proposed educational uses, NTIA recommends allowing circumvention for colleges and universities to make use of entire motion pictures.⁵¹¹ It contends that that the "primary reason for universities to [circumvent TPMs on motion pictures] is to be able to continue to play motion pictures in the classroom as universities face the ramifications of obsolescence and discontinued use of optical drives."⁵¹² In NTIA's view, the storage of a copy "in a central secured server available only for transmission to the institution's classrooms," is "not fundamentally different from the uses allowed by the existing exemption" for purposes of the fair use analysis.⁵¹³ As support, it relies on the *HathiTrust* and *Google Books* decisions, describing those cases as holding "that it might be necessary to copy the entire copyrighted work, such as to enable full-text searches of books."⁵¹⁴ NTIA urges the Office to "consider the TEACH Act as a guide when determining the parameters of this proposed exemption" and to incorporate various conditions—for example, that circumvention be supervised by university intellectual property rights offices or general counsel, that copies are stored on a closed university secured central server, and that the institution use industry licenses if available.⁵¹⁵

The Acting Register cannot agree with this analysis of copyright law. As discussed above, the use of "short portions" of motion pictures presents significantly different issues under the fair use inquiry than does the use of such works in their entirety. Indeed, the cases cited by proponents and NTIA carefully distinguish the copying of whole works from performing or displaying those works. Both *HathiTrust* and *Google Books* emphasized that the digital copies at issue did not effectively substitute for the originals because the search functions displayed either none of the books' text or only small snippets.⁵¹⁶ BYU's proposed uses are not so limited. Further, the relevance of the

⁵¹⁰ *Id.* at 11.

⁵¹¹ *Id.* at 17.

⁵¹² *Id.* at 18.

⁵¹³ *Id.* at 18, 24.

⁵¹⁴ *Id.* at 20.

⁵¹⁵ *Id.* at 22–23.

⁵¹⁶ *Google Books*, 804 F.3d at 224 (finding that even though the search function allowed the user to view "snippets" of the book in which the search term appears in the book, it did not effectively substitute for the original works because viewers were seeing such a small portion of the book); *HathiTrust*, 755 F.3d at 100 (finding that a full-text search function did not serve as a substitute for the original books because the search results did not display any text from the underlying works).

TEACH Act to those uses is slight given that it applies only to reasonable and limited portions of motion pictures, is limited to distance learning, and does not permit the copying of full-length works.

Regarding the proposed expansion for MOOCs, NTIA recommends expansion to for-profit educational institutions,⁵¹⁷ but not to unaccredited educational institutions.⁵¹⁸ It concludes that “there is sufficient evidence in the record to expand the exemption beyond non-profit educational institutions—the record shows examples of legitimate educational uses by accredited for-profit educational institutions.”⁵¹⁹ In the Acting Register’s view, however, such evidence is inadequate, as there is no suggestion that for-profit institutions wish to offer additional content that they are unable to license.⁵²⁰

As to multimedia e-books, NTIA proposes expanding the exempted use to include all nonfiction multimedia e-books (*i.e.*, eliminating the “offering film analysis” limitation), but rejects expansion to fictional multimedia e-books.⁵²¹ NTIA also addresses the scope of the exemption, stating that “the petitioner described media that would, if the petition [were] granted, appear to broaden the definition of e-book beyond what is the common understanding of this term.”⁵²² In its view, proponents “appear to contend that the Copyright Office could consider a website or a blog to be an e-book.”⁵²³ NTIA expresses concern that this proposal “could allow essentially all authors of websites to circumvent TPMs to insert short audiovisual clips into their sites.”⁵²⁴ The Acting Register, however, does not understand proponents to necessarily be requesting an expansion of the definition of “multimedia e-book.” Rather, the Acting Register understands proponents’ comments as seeking to clarify whether inserting a noncommercial remix video into a (noncommercial) multimedia e-book format (*e.g.*, Kindle) would be covered by the existing exemption, assuming the remix video itself complies with the existing noncommercial video exemption.⁵²⁵ As noted above, the Acting Register finds that the

⁵¹⁷ NTIA Letter at 25–26.

⁵¹⁸ *Id.* at 26.

⁵¹⁹ *Id.* at 25–26.

⁵²⁰ *See* Tr. at 290:10–24 (Apr. 11, 2018) (Decherney, Joint Educators) (confirming that Joint Educators have not communicated with for-profit and/or unaccredited educational institutions to see if they share a need for circumvention to offer MOOCs).

⁵²¹ NTIA Letter at 12–13.

⁵²² *Id.* at 11.

⁵²³ NTIA Letter at 13.

⁵²⁴ *Id.*

⁵²⁵ *See* Authors All. et al. Class 1 Reply at 14; *see also* Tr. at 104:21–105:15 (Apr. 11, 2018) (Tandy, OTW); Tr. at 122:03–08 (Apr. 11, 2018) (Reid, Authors All.).

exempted use for noncommercial videos in the current exemption may be broad enough to cover such use, provided the existing noncommercial video exemption is satisfied.

Concerning the proposed filmmaking expansion, NTIA contends that the existing exemption should be expanded to all films (*i.e.*, by removing the “documentary” limitation). NTIA maintains that the record supports a finding that in many instances the use of short portions of motion pictures is likely a noninfringing fair use.⁵²⁶ Specifically, NTIA states that “[n]on-documentary filmmakers could take material from the original work and transform it to add new expression or meaning,”⁵²⁷ and concludes that opponents have failed to demonstrate the expansion to non-documentaries would cause market harm.⁵²⁸ As noted, however, the Acting Register finds that the record does not support expansion to all films generally. While proponents provided multiple examples of non-documentaries using short motion picture clips to provide criticism or commentary, those examples generally involve situations where the use is for parody or for the clip’s biographical or historical significance. Moreover, NTIA acknowledges that there remains an active clip licensing market, generally, and the Acting Register concludes it is prudent to tailor the recommended exemption accordingly to better reflect the record and avoid disrupting the legitimacy of this market.

Finally, as a general matter, NTIA recommends removing all references to screen capture, maintaining that they are “confusing and contradictory.”⁵²⁹ The Acting Register believes, however, that expressly permitting the use of screen-capture technology is useful to users who may be uncertain as to whether such use involves circumvention—a question on which NTIA does not take a position.⁵³⁰ As discussed below, the Acting Register does recommend eliminating the current exemption’s additional requirement that a user “reasonably believes that screen-capture software or other non-circumventing alternatives are unable to produce the required level of high-quality content,” in favor of language suggested by EFF/NMR/OTW, which simply requires that the user reasonably believe that “non-circumventing alternatives” are unable to produce such content.⁵³¹

Overall, the Acting Register generally agrees with NTIA that the existing exemption for uses of motion picture excerpts should be expanded in certain respects, though not as broadly as NTIA proposes, largely due to the limitations of the record.

⁵²⁶ NTIA Letter at 14–15.

⁵²⁷ *Id.* at 15.

⁵²⁸ *Id.* at 16.

⁵²⁹ *Id.* at 28.

⁵³⁰ *Id.*

⁵³¹ EFF, NMR & OTW Class 1 Initial at 1.

4. Conclusion and Recommendation

As detailed above, proponents seeking expansions for filmmaking, multimedia e-books, and certain educational uses have demonstrated that various technological measures interfere with their ability to make additional desired uses of motion pictures and that a number of those uses are likely noninfringing. The Acting Register thus recommends that the current exemption be expanded in certain limited ways to reflect this additional record.

But first, a few general observations. A number of commenters urged that the exemption be simplified to be more accessible for users. The Acting Register generally agrees, and has adopted suggestions to condense regulatory language where possible. As noted, the Acting Register declines to recommend a single, overarching exemption, finding the descriptions of intended users or uses useful in establishing the evidentiary basis to recommend an exemption.⁵³² The recommended language does, however, restructure the exemption components in a manner intended to be more reader-friendly. Specifically, it provides prefatory language setting forth generally applicable requirements and then groups the various provisions into two subcategories addressing (1) criticism and comment and (2) educational uses. The end result is language that totals 435 words, compared to 958 words in the 2015 exemption.

In addition, in the provisions addressing criticism and comment, and those addressing uses by educators and students in college, university, and K-12 institutions, the exemption maintains the requirement that users consider non-circumventing alternatives. It does so by incorporating EFF/NMR/OTW's suggested phrase, "where the person engaging in circumvention reasonably believes that non-circumventing alternatives are unable to produce the required level of high-quality content."⁵³³ The Acting Register finds it appropriate to continue to distinguish between purposes requiring high-quality motion picture clips and more general purposes that do not. The evidence again demonstrates that non-circumventing alternatives can serve as an adequate substitute to circumvention in certain cases for criticism, commentary, or other pedagogical uses, but not in others.⁵³⁴ The Acting Register believes that a requirement

⁵³² The Register also declines to remove the reference to the specific TPMs, a suggestion EFF/NMR/OTW made in its reply comment, a change from its initially-proposed language. See EFF, NMR & OTW Class 1 Reply at 12. Indeed, the rulemaking focuses on the effect of specific technological measures. See, e.g., Commerce Comm. Report at 38; House Manager's Report at 6 (stating that "the rulemaking proceedings should consider the positive as well as the adverse effects of these technologies on the availability of copyrighted materials").

⁵³³ EFF, NMR & OTW Class 1 Initial at 1.

⁵³⁴ See, e.g., Tr. at 242:06–07 (Apr. 11, 2018) (Hobbs, Media Educ. Lab) (noting that screen capture may be an alternative to circumvention for educational purposes in the *Alone in the Wilderness* project); Tr. at 37:18–22 (Apr. 24, 2018) (Rosenblatt, OTW) ("So, for multimedia e-books, I think it

that users consider whether it is really necessary to engage in circumvention before doing so is consistent with the aims of the rulemaking.⁵³⁵

Second, for all categories of uses, the regulatory text expressly permits the use of screen-capture technology. The Acting Register recommends retaining a screen-capture provision to address the possibility that use of this technology could be deemed to involve circumvention. Inclusion of this provision can give a user comfort that if he or she uses technology that was marketed as a non-circumventing screen-capture tool, then the user can use the technology without fear of violating section 1201 regardless of its actual technological operation.⁵³⁶ Indeed, the parties expressed uncertainty during the hearing if screen-capture technologies circumvent or not.⁵³⁷

Third, opponents suggest the exemption should include a digital rights management requirement to reduce the likelihood of downstream piracy.⁵³⁸ With the exception of the existing MOOCs language, which expressly imports a digital rights management requirement and other requirements from section 110(2), the Acting Register declines to add this limitation to the existing exemption, and notes that there has been no evidence introduced suggesting that exempted users do not take adequate precautions to reduce the likelihood of downstream piracy to avoid liability.

Turning to the proposed expansions for educational uses, the Acting Register recommends an expansion that recognizes the needs for K-12 and university faculty and students to engage with motion picture excerpts of high quality. Proponents have introduced multiple examples of uses for commentary and criticism beyond film studies or other courses requiring close analysis of excerpts, as well as for teaching or scholarship more generally. These latter uses included, for example, teachers' use of short film clips to create compilations from foreign language films with and without subtitles,⁵³⁹ and students captioning motion pictures to strengthen listening comprehension and writing skills.⁵⁴⁰ While the Acting Register makes no judgment as to whether any particular uses of short motion picture clips are in fact fair, the record

depends entirely on what you are doing. There are probably some uses for which screen capture is absolutely adequate. And there are some for which it is not.”).

⁵³⁵ See Commerce Comm. Report at 35–36.

⁵³⁶ See Tr. at 200:18–24 (Apr. 11, 2018) (Williams, Joint Creators II).

⁵³⁷ See Tr. at 199:12–16 (Apr. 11, 2018) (Reid, Authors All.); Tr. at 18:07–09 (Apr. 24, 2018) (Rosenblatt, OTW) (“In response to the question that does screen capture require or involve circumvention of technological protection measures, nobody knows.”).

⁵³⁸ DVD CCA & AACCS LA Class 1 Opp’n at 30.

⁵³⁹ Tr. at 242:17–23, Hearing Ex. 1-E (Apr. 11, 2018) (Midgley, BYU).

⁵⁴⁰ Media Educ. Lab Class 1 Post-Hearing Resp. at 2 (June 10, 2018).

demonstrates that many of the uses suggested by proponents appear likely to be noninfringing and warrant expansion of the existing exemption. The same conclusion cannot be made as to the contemplated uses of *full-length* motion pictures, and thus the Register recommends against expansion to the use of full-length motion pictures.

Further, while participants continue to acknowledge that many of these uses can be made without circumvention,⁵⁴¹ the record also indicates that as high-quality video permeates daily life, for a variety of uses, it is increasingly important for these users to incorporate high-quality clips to effectively achieve their pedagogical ends.⁵⁴² Accordingly, while the recommended exemption retains the requirement that a person must reasonably believe that non-circumventing alternatives are unworkable, the recommended language removes the references to “film studies or other courses requiring close analysis” and eliminates distinctions between K-12 and universities and colleges, as well as between faculty and students. The Acting Register recommends, however, that the exemption require K-12 students to act under the direct supervision of K-12 educators. Finally, the Acting Register observes that the recommended language relating to college and university faculty and students, and kindergarten through twelfth-grade educators appears broad enough to encompass exempted uses under sections 110(1) and 110(2) (*i.e.*, face-to-face and distance teaching). While the Acting Register determines that specific references to section 110(1) and 110(2) are not necessary, BYU and other educational users should have comfort that the proposed language encompasses uses permitted under sections 110(1) and 110(2), subject to the short portions limitation.

In evaluating the proposed MOOCs expansions, the Register finds that the record lacks support to expand the existing exemption to for-profit and/or unaccredited educational institutions. Moreover, proponents’ broadly framed proposal seeking to encompass “all online courses” would seemingly encompass any online video that could be characterized as an educational experience. The Register therefore recommends that the MOOCs language from the existing exemption be adopted without substantive changes.

Regarding circumvention currently permitted by educators and participants in nonprofit digital and media literacy programs offered by libraries, museums, and other nonprofit entities with an educational mission, the record lacks any evidence warranting expansion (and indeed it appears that parties did not directly provide comments

⁵⁴¹ Tr. at 242:06–07 (Apr. 11, 2018) (Hobbs, Media Educ. Lab); *see also* 2015 Recommendation at 101.

⁵⁴² *See, e.g.*, Authors All., Joint Educators, LCA & OTW Class 1 Post-Hearing Resp.; EFF, NMR & OTW Class 1 Reply at 7–10; Media Educ. Lab Class 1 Post-Hearing Resp.; *see also* BYU Class 1 Post-Hearing Resp. (detailing examples where screen-capture technology is unworkable).

regarding this use). The Register therefore recommends that the existing language for this use be adopted without substantive changes.

As to the proposal to expand the filmmaking exemption beyond documentaries, based on the extensive record, the Register recommends that the existing exemption for documentary films be expanded to include a subset of fictional (*e.g.*, narrative) films. The Acting Register finds that the desire to engage in criticism or commentary is a critical factor in recommending to expand the existing exemption.⁵⁴³ In considering the expanded examples of non-documentary films, the Acting Register concludes that the record supports a finding that the use of motion picture clips in non-documentary films for purposes of criticism and comment, where the clip is used for parody or its biographical or historically significant nature, is likely to be noninfringing. As the 2015 Recommendation acknowledged, some fictional filmmaking may offer criticism and commentary through parody or “present information and commentary meant to educate and analyze real events,” and this expansion is intended to encompass such uses.⁵⁴⁴ As Joint Filmmakers acknowledge, the existing exemption is limited to criticism and comment, which is narrower than fair use generally;⁵⁴⁵ the expanded exemption retains this important limitation. Moreover, the Acting Register notes that uses deemed to be more than “short portions” would not be subject to the exemption and would need to be licensed. In addition, should evidence emerge that the expanded exemption has resulted in abuse, the expansion can be reconsidered in the next rulemaking.

Finally, concerning the proposed multimedia e-books expansion, the record contains no evidence of proposed uses in fictional e-books that appear likely to be noninfringing, and the Acting Register therefore sees no reason to expand the exemption to fictional e-books. The record does, however, support expansion to nonfiction multimedia e-books beyond film analysis. The Acting Register finds that the desire to engage in criticism or commentary is a critical factor in deciding to expand the existing exemption to nonfiction multimedia e-books beyond film analysis.⁵⁴⁶

Accordingly, the Register recommends that the following classes of works be exempt from the prohibition on circumvention for the next three years:

Motion pictures (including television shows and videos), as defined in 17 U.S.C. 101, where the motion picture is lawfully made and acquired

⁵⁴³ See 2015 Recommendation at 100.

⁵⁴⁴ *Id.* at 79 (citing 2015 Joint Filmmakers Supp. at 5).

⁵⁴⁵ Tr. 93:24–94:01 (Apr. 11, 2018) (Donaldson, Joint Filmmakers) (“The exemption is much narrower than the fair use exemption as described by the courts. And that is the exemption we have to live with.”).

⁵⁴⁶ See 2015 Recommendation at 100.

on a DVD protected by the Content Scramble System, on a Blu-ray disc protected by the Advanced Access Content System, or via a digital transmission protected by a technological measure, and the person engaging in circumvention under paragraph (b)(1)(i) and (b)(1)(ii)(A) and (B) of this section reasonably believes that non-circumventing alternatives are unable to produce the required level of high-quality content, or the circumvention is undertaken using screen-capture technology that appears to be offered to the public as enabling the reproduction of motion pictures after content has been lawfully acquired and decrypted, where circumvention is undertaken solely in order to make use of short portions of the motion pictures in the following instances:

(i) For the purpose of criticism or comment:

(A) For use in documentary filmmaking, or other films where the motion picture clip is used in parody or for its biographical or historically significant nature;

(B) For use in noncommercial videos (including videos produced for a paid commission if the commissioning entity's use is noncommercial); or

(C) For use in nonfiction multimedia e-books.

(ii) For educational purposes:

(A) By college and university faculty and students or kindergarten through twelfth-grade (K-12) educators and students (where the K-12 student is circumventing under the direct supervision of an educator), including of accredited general educational development (GED) programs, for the purpose of criticism, comment, teaching, or scholarship;

(B) By faculty of massive open online courses (MOOCs) offered by accredited nonprofit educational institutions to officially enrolled students through online platforms (which platforms themselves may be operated for profit), in film studies or other courses requiring close analysis of film and media excerpts, for the purpose of criticism or comment, where the MOOC provider through the online platform limits transmissions to the extent technologically feasible to such officially enrolled students, institutes copyright policies and provides copyright

informational materials to faculty, students, and relevant staff members, and applies technological measures that reasonably prevent unauthorized further dissemination of a work in accessible form to others or retention of the work for longer than the course session by recipients of a transmission through the platform, as contemplated by 17 U.S.C. 110(2); or

(C) By educators and participants in nonprofit digital and media literacy programs offered by libraries, museums, and other nonprofit entities with an educational mission, in the course of face-to-face instructional activities, for the purpose of criticism or comment, except that such users may only circumvent using screen-capture technology that appears to be offered to the public as enabling the reproduction of motion pictures after content has been lawfully acquired and decrypted.

B. Proposed Class 2: Audiovisual Works—Accessibility

1. Background

a. Summary of Proposed Exemption

Proposed Class 2 would allow circumvention of technological measures protecting motion pictures for disability services professionals at educational institutions to create accessible versions of motion pictures for students with disabilities.⁵⁴⁷ The Association of Transcribers and Speech-to-Text Providers (“ATSP”), Association of Research Libraries, American Library Association, American Library Association Video Round Table, Association of College and Research Libraries, and Association on Higher Education and Disability (collectively, “ATSP et al.”) submitted a petition seeking this exemption so that disability services professionals can “fulfill their legal and ethical obligations to make digital works accessible for students with disabilities . . . without uncertainty about the intersection of their activities and [s]ection 1201.”⁵⁴⁸

Specifically, proponents request an exemption to permit:

disability services offices, organizations that support people with disabilities, libraries, and other units at educational institutions that are responsible for fulfilling those institutions’ legal and ethical obligations to make works accessible to people with disabilities to circumvent technological protection measures for motion pictures (including

⁵⁴⁷ ATSP et al. Class 2 Initial at 2, 5–6.

⁵⁴⁸ *Id.* at 2.

television shows and videos), where circumvention is undertaken for the purpose of making a motion picture accessible to people with disabilities, including through the provision of closed and open captions and audio description.⁵⁴⁹

“Captioning” is “the process of converting the audio content” of audiovisual material, such as a motion picture, “into text and displaying the text on a screen, monitor, or other visual display system.”⁵⁵⁰ Captioning “not only display[s] words as the textual equivalent of spoken dialogue or narration, but . . . also include[s] speaker identification, sound effects, and music description.”⁵⁵¹ By contrast, “audio description” is a narration added to the soundtrack of audiovisual material, such as a motion picture, to describe significant visual details (e.g., descriptions of new scenes, settings, costumes, body language) for individuals with sight impairments.⁵⁵²

Proponents’ comments include testimony from multiple disability service professionals.⁵⁵³ In addition, FSF submitted brief comments in support of ATSP et al.’s petition.⁵⁵⁴ Class 2 was opposed by DVD CCA and AACCS LA and Joint Creators I.⁵⁵⁵

b. Overview of Issues

Proponents explain that “nearly all educational institutions” are subject to disability laws such as the Americans with Disabilities Act (“ADA”), section 504 of the Rehabilitation Act (“Section 504”), and the Individuals with Disabilities Education Act (“IDEA”), which require educational institutions to “foster a learning environment that accommodates students with disabilities.”⁵⁵⁶ Proponents maintain that accommodating students with disabilities often means providing accessible versions of motion pictures

⁵⁴⁹ ATSP et al. Class 2 Pet. at 3.

⁵⁵⁰ *What is Captioning?*, National Ass’n of the Deaf, <https://www.nad.org/resources/technology/captioning-for-access/what-is-captioning/> (last visited Sept. 27, 2018).

⁵⁵¹ *Id.* “Closed captions” are “visible only when selected and activated,” whereas “open captions” “cannot be selected or activated, such as when they are permanently embedded in the audiovisual material.” *Id.*

⁵⁵² *The Audio Description Project*, AM. COUNCIL OF THE BLIND, <http://www.acb.org/adp/ad.html> (last visited Sept. 27, 2018). Audio description may also be referred to as “video description” or “descriptive narration.” *Id.*

⁵⁵³ ATSP et al. Class 2 Initial at 17–19 (appendix containing testimonials of unidentified disability service professionals).

⁵⁵⁴ FSF Class 2 Initial at 2 (stating that “all users have a legitimate right to circumvent controls on audiovisual works, regardless of the medium or the particular use involved”).

⁵⁵⁵ Joint Creators I Class 2 Opp’n at 3–21; DVD CCA & AACCS LA Class 2 Opp’n at 2–6.

⁵⁵⁶ ATSP et al. Class 2 Initial at 8.

available to other students.⁵⁵⁷ Indeed, as ATSP et al. note, the Department of Justice (“DOJ”) “has the authority to censure and initiate legal action against educational institutions where disability service professionals decline or are unable to make content accessible to people with disabilities.”⁵⁵⁸

Proponents observe that nearly 48 million Americans are deaf or hard of hearing, and approximately 77,000 students with hearing disabilities require support from disability services offices.⁵⁵⁹ They also note that nearly 24 million Americans are blind, visually impaired, or print-disabled, and that more than 60,000 students with visual disabilities require assistance from disability services offices.⁵⁶⁰ According to proponents, disability services offices can receive “daily” requests,⁵⁶¹ adding up to “hundreds per semester,” to reconfigure videos into accessible formats, generally by adding captions or audio description.⁵⁶²

Proponents maintain that creating accessible versions is necessary because inaccessible motion pictures remain prevalent in the video industry and that copyright owners fail to retroactively make motion pictures accessible or grant permission to disability services offices to make those works accessible, even when contacted directly.⁵⁶³ In addition, proponents assert that it is “unrealistic and unduly costly” to expect disability service professionals to search for new and accessible versions of motion pictures, and that it would be “wholly inconsistent with the principles established in the ADA to mitigate the costs associated with retroactively making content accessible.”⁵⁶⁴

Opponents Joint Creators I “understand that accessibility is an important issue,” and note that, since 2011, “nearly all” digital releases by MPAA members have been captioned and audio described, but believe the proposed class is “far too broad.”⁵⁶⁵ Similarly, DVD CCA and AACS LA state that they are “open to a reasonable exemption that facilitates the proposed activities in circumstances where the market has not yet

⁵⁵⁷ *Id.* at 9.

⁵⁵⁸ ATSP et al. Class 2 Reply at 10 (citing Letter from Rebecca B. Bond, Chief, Disability Rights Section, Department of Justice, to Nicholas B. Dirks, Chancellor, Univ. of Cal. Berkeley 10 (Aug. 20, 2016), https://www.ada.gov/briefs/uc_berkeley_lof.pdf).

⁵⁵⁹ ATSP et al. Class 2 Initial at 3.

⁵⁶⁰ *Id.* at 4.

⁵⁶¹ *Id.* at 3.

⁵⁶² *Id.* at 5, 7, 17 (testimony of unidentified West Virginia University disability services professional).

⁵⁶³ *Id.* at 12.

⁵⁶⁴ ATSP et al. Class 2 Reply at 10.

⁵⁶⁵ Joint Creators I Class 2 Opp’n at 3.

provided accessibility.”⁵⁶⁶ They maintain, however, that the proposed exemption is overbroad because it does not take into account “the extent to which DVDs and [Blu-Ray discs] already include closed captions and audio description.”⁵⁶⁷

Specifically, Joint Creators I suggest the proposed exemption is overbroad because “petitioners do not explain precisely the conduct in which they seek to engage,” raising questions regarding, *inter alia*, the initial acquisition of the works, and how the accessible versions of works would be distributed or protected.⁵⁶⁸ They analogize to the 2012 rulemaking, where the Register recommended, and the Librarian granted, an exemption for conducting research and development for the purpose of creating players capable of making motion pictures accessible through audio or visual captioning.⁵⁶⁹ At the same time, however, the Register concluded that there was insufficient factual information regarding the proposed uses and technology to recommend a broader exemption for captioning or audio descriptions, generally.⁵⁷⁰

While some of these potential ambiguities raised by Joint Creators I are discussed further below, overall, the Acting Register finds that proponents have sufficiently described the proposed exemption. The record is more robust than in 2012, and the request is limited to circumvention by personnel at educational institutions. Proponents assert that to create accessible versions of motion pictures, disability services professionals at such institutions must circumvent technological measures protecting motion pictures on DVDs, Blu-Ray discs, or via digital transmissions to add captions and/or audio description.⁵⁷¹ Specifically, for captioning, a disability services professional first manually creates a transcript of the motion picture, including speaker identification and sound effects.⁵⁷² The disability services professional would then circumvent the technological measure protecting the motion picture, compress the work into an MP4 or similar format, and import the file into a captioning program such as MovieCaptioner.⁵⁷³

⁵⁶⁶ DVD CCA & AACCS LA Class 2 Opp’n at 2.

⁵⁶⁷ *Id.*

⁵⁶⁸ Joint Creators I Class 2 Opp’n at 10.

⁵⁶⁹ *Id.* at 7–10, 13–14; *see* 2012 Recommendation at 148–51 (expressing concern over “broad generalization” of intended uses but finding the record more developed for research and development).

⁵⁷⁰ 2012 Recommendation at 155.

⁵⁷¹ ATSP et al. Class 2 Reply at 12; *see also* Tr. at 7:02–08, Hearing Ex. 2-A (Apr. 12, 2018) (ATSP); Tr. at 11:09–21 (Apr. 12, 2018) (Reid, ATSP).

⁵⁷² ATSP et al. Class 2 Reply at 12; *see also* Tr. at 7:02–08, Hearing Ex. 2-A (Apr. 12, 2018) (ATSP); Tr. at 11:22–12:14 (Apr. 12, 2018) (Cowling, ATSP & Kent State Univ.).

⁵⁷³ *See* Tr. at 7:02–08, Hearing Ex. 2-A (Apr. 12, 2018) (ATSP); Tr. at 12:07–14 (Apr. 12, 2018) (Cowling, ATSP & Kent State Univ.). Proponents offer testimony that “[t]he process to caption

Using the captioning software, the transcriber plays a short segment of the motion picture in a loop, and manually types in the captions for that segment, which is recorded along with the time code for that segment.⁵⁷⁴ The process is repeated for the remaining segments until the captioning is completed. To add audio description to a motion picture, a disability services professional would use a similar process after manually creating a narrative describing what is taking place in the motion picture, using describing software.⁵⁷⁵

In the alternative, proponents explain that instead of creating the transcript or description of the motion picture themselves, disability services professionals may outsource the addition of captioning and/or audio description to a commercial vendor specializing in accessible works, such as 3Play Media or VITAC.⁵⁷⁶ Circumvention of technological measures protecting motion pictures on DVDs, Blu-Ray discs, and via digital transmissions would still be required for outsourcing, as the vendor would need to receive the motion picture in an MP4 or similar format file.⁵⁷⁷ Relatedly, Joint Creators I express concern that the proposed exemption would cover “the provision of circumvention services” and perhaps also “the creation and circulation of circumvention tools,” in violation of the anti-trafficking provisions.⁵⁷⁸ It is not clear, however, that these vendors would themselves need to engage in the circumvention, rather than simply process files provided by the educational institution.⁵⁷⁹

There was also some disagreement as to the intended beneficiaries of the proposed exemption. Although the petition refers to making motion pictures accessible to “people with disabilities,”⁵⁸⁰ throughout their written submissions and testimony proponents refer to the need for *students* to have accessible versions (or their educators);⁵⁸¹ the record

videos take upwards of 7 hours for each hour of video captioned (often more).” ATSP et al. Class 2 Initial at 17 (testimony of unidentified West Virginia University disability services professional).

⁵⁷⁴ ATSP et al. Class 2 Reply at 12; *see also* Tr. at 7:02–08, Hearing Ex. 2-A (Apr. 12, 2018) (ATSP); Tr. at 12:07–14 (Apr. 12, 2018) (Cowling, ATSP & Kent State Univ.).

⁵⁷⁵ ATSP et al. Class 2 Reply at 12–13; Tr. at 18:12–16 (Apr. 12, 2018) (Cowling, ATSP & Kent State Univ.); *see also* Tr. at 7:02–08, Hearing Ex. 2-A (Apr. 12, 2018) (ATSP); Tr. at 12:07–14 (Apr. 12, 2018) (Cowling, ATSP & Kent State Univ.).

⁵⁷⁶ ATSP et al. Class 2 Reply at 13.

⁵⁷⁷ *Id.*

⁵⁷⁸ Joint Creators I Class 2 Opp’n at 20.

⁵⁷⁹ *See* ATSP et al. Class 2 Reply at 13 (noting that vendors must “receive media in the form of an MP4 or similar format, which requires circumvention of TPMs *beforehand*”) (emphasis added).

⁵⁸⁰ ATSP et al. Class 2 Pet. at 3 (emphasis added).

⁵⁸¹ *See, e.g.,* ATSP et al. Class 2 Initial at 2–4 (“This exemption is necessary so that when disability services professionals must circumvent technological protection measures to fulfill their legal and

does not describe others who might be entitled to receive these accessible versions of motion pictures under relevant laws. Next, opponents maintain that because the examples from proponents' written submissions are limited to the university context (as opposed to kindergarten through twelfth grade students), the proposed exemption should be limited to college and university students, and that the Office should ignore information submitted in response to a post-hearing question.⁵⁸² To be sure, the NPRM instructed proponents to "present their complete affirmative case for an exemption during the initial round of public comment, including all legal and evidentiary support for the proposal."⁵⁸³ Proponents' initial comment, however, references the IDEA multiple times, which specifically applies to public elementary and secondary schools (*i.e.*, not to colleges and universities), and neither the petition nor initial comments were otherwise limited to post-secondary educational institutions.⁵⁸⁴ In addition, proponents testified that kindergarten through twelfth-grade students have the same accessibility needs as students in higher education, and thus would be similarly adversely affected should the exemption not be granted.⁵⁸⁵ Opponents do not dispute these claims. The Acting Register concludes that proponents sufficiently developed the record to include kindergarten through twelfth-grade students in addition to students at colleges and universities (and not the public at large) in consideration of whether to grant the proposed exemption.⁵⁸⁶

ethical obligations to make digital works accessible for *students* with disabilities.") (emphasis added); Tr. at 58:12–23 (Apr. 12, 2018) (Reid, ATSP) (confirming that students would be beneficiaries of proposed exemption); *see also* Tr. at 23:04–10 (Apr. 12, 2018) (Cowling, ATSP & Kent State Univ.) (confirming that accessible versions may be made available to educators in cases where the entire class, consisting of students with and without disabilities, watches a motion picture together).

⁵⁸² Joint Creators I Class 2 Post-Hearing Resp. at 1 (contending that any examples provided in response to the Office's post-hearing letter should be disregarded).

⁵⁸³ NPRM at 49,558.

⁵⁸⁴ ASTP et al. Class 2 Initial at 3, 4, 8; *see also* ASTP et al. Reply at 16; 20 U.S.C. § 1400(d)(1)(A) ("[One purpose] of this chapter [is] to ensure that all children with disabilities have available to them a free appropriate public education that emphasizes special education and related services designed to meet their unique needs and prepare them for further education, employment, and independent living.").

⁵⁸⁵ *See* Tr. at 59:13–20, 66: 06–15 (Apr. 12, 2018) (Band, LCA). While proponents acknowledged that most of their evidentiary examples concerned secondary institutions, they maintain that an exemption should be broad enough to encompass K-12 institutions who have a growing need to engage in circumvention to fulfill their legal mandates. Tr. at 58:20–59:23 (Apr. 12, 2018) (Reid, ATSP; Band, LCA).

⁵⁸⁶ In its post-hearing letter, the Office solicited "illustrative examples of kindergarten through twelfth-grade educational institutions needing to circumvent motion pictures," and asked

2. Discussion

a. Works Protected by Copyright

This class concerns a request to circumvent access controls protecting audiovisual works contained on DVDs, Blu-ray discs, or transmitted through streaming services. There is no dispute that at least some of these works are protected by copyright.

b. Asserted Noninfringing Uses

Proponents submit that adding captions and/or audio description to motion pictures for the purpose of making them accessible to students with disabilities constitutes fair use. Proponents point to the House Report for the 1976 Act, which states:

Another special instance illustrating the application of the fair use doctrine pertains to the making of copies or phonorecords of works in the special forms needed for the use of for blind persons. These special forms . . . are not usually made by the publishers for commercial distribution . . . the making of a single copy or phonorecord by an individual as a free service for a blind persons [sic] would properly be considered a fair use under section 107.⁵⁸⁷

According to proponents, “the legislative history . . . makes clear that converting works into formats that are accessible to people with sensory disabilities is a quintessential example of fair use.”⁵⁸⁸ In addition, proponents cite a footnote in *Sony v. Universal City Studios*, in which the Supreme Court references the same House Report and notes that “[m]aking a copy of a copyrighted work for the convenience of a blind person is expressly identified by the House Committee Report as an example of fair use, with no suggestion that anything more than a purpose to entertain or to inform need motivate the copying.”⁵⁸⁹

For their part, Joint Creators I suggest that the scope of the intended uses is insufficiently delineated for the Acting Register to form a basis that the uses are fair, and suggests that

whether the needs of K-12 institutions differed from the factual testimony regarding university and college disability services officers. Class 2 Post-Hearing Letter. Based on the prior testimony concerning the needs of K-12 institutions, the Office views this as directed at clarifying the record, rather than soliciting new evidence.

⁵⁸⁷ H.R. REP. NO. 94-1476, at 73, as reprinted in 1976 U.S.C.C.A.N. 5659, 5687 (1976); S. REP. NO. 94-473, at 66 (1975).

⁵⁸⁸ ATSP et al. Class 2 Initial at 9 (citing H.R. REP. NO. 94-1476, at 73, reprinted in 1976 U.S.C.C.A.N. at 5687).

⁵⁸⁹ ATSP et al. Class 2 Initial at 9 (quoting *Sony*, 464 U.S. at 455 n.40).

proponents have not cited any authority holding that captioning or audio describing motion pictures qualifies as a noninfringing use.⁵⁹⁰

In addition, the participants specifically address the four fair use factors. Regarding the purpose and character of the use, proponents cite *Authors Guild, Inc. v. HathiTrust* and argue that “[c]onverting an inaccessible copyrighted motion picture into an accessible format clearly serves a broad public benefit and results in direct, tangible benefit for many students who are blind, visually impaired, deaf, or hard of hearing,” such that providing accessible formats to individuals with disabilities “serves ‘a valid purpose under [fair use] factor one.’”⁵⁹¹ Proponents assert that Congress’s commitment to individuals with disabilities further evidences the “valid purpose” of converting inaccessible versions of motion pictures into accessible formats by adding captioning and/or audio description.⁵⁹² Specifically, proponents reference disability laws such as the ADA, as well as the Chafee Amendment, the latter of which provides that it is not an infringement of copyright “for an authorized entity to reproduce or to distribute copies or phonorecords of a previously published, nondramatic literary work if such copies or phonorecords are reproduced or distributed in specialized formats exclusively for use by blind or other persons with disabilities.”⁵⁹³ Proponents argue that the Chafee Amendment “illustrates Congress’s intent that copyright law make appropriate accommodations for the blind, visually impaired, or print disabled.”⁵⁹⁴

Joint Creators I assert that proponents’ reliance on *HathiTrust* is misplaced insofar as it concerned making “text-to-speech” versions of literary works for the print disabled.⁵⁹⁵ They argue the result of altering a motion picture—such as by adding captioning and/or audio description—“is likely a derivative work that involves a creative interpretation of the underlying work,” and thus is more comparable to creating a foreign language translation, which is an exclusive right of the copyright owner.⁵⁹⁶ Joint Creators I also note that the Chafee Amendment “applies only to non-dramatic literary works” (*i.e.*, not motion pictures), and that it includes multiple limitations that the proposed exemption lacks, including that copies must be made and distributed “exclusively for use by blind or other persons with disabilities,” and “only [] in specialized formats.”⁵⁹⁷

⁵⁹⁰ Joint Creators I Class 2 Opp’n at 13.

⁵⁹¹ ATSP et al. Class 2 Initial at 10 (citing *HathiTrust*, 755 F.3d at 102).

⁵⁹² *Id.*

⁵⁹³ 17 U.S.C. § 121(a).

⁵⁹⁴ ATSP et al. Class 2 Initial at 10 (quoting *HathiTrust*, 755 F.3d at 102).

⁵⁹⁵ Joint Creators I Class 2 Opp’n at 16.

⁵⁹⁶ *Id.* at 15–16 (citing *HathiTrust*, 755 F.3d at 101; *Radji v. Khakbaz*, 607 F. Supp. 1296, 1300 (D.D.C. 1985)).

⁵⁹⁷ *Id.* at 17–18 (citations omitted).

Finally, Joint Creators I assert that the Register determined during the 2012 rulemaking that neither *Sony* nor the 1976 Act House Report “suggest[] a rule that all reproduction, adaptation and distribution for the purpose of accessibility is fair use.”⁵⁹⁸ Specifically, they note that, in deciding to recommend an exemption for the purpose of engaging in research and development aimed at developing players capable of rendering captions and descriptive audio, “the Register expressly stated that she was not concluding that captioning or audio describing a motion picture qualifies as a fair use.”⁵⁹⁹

Considering the present request in light of this precedent, including the 2014 *HathiTrust* opinion, the Acting Register finds that the first factor weighs in favor of fair use. In *HathiTrust*, the Second Circuit found that although creating a database of millions of text and image files of books for the purpose of providing access to individuals with disabilities is not “transformative,” “providing access to the print-disabled is still a valid purpose” under the first fair use factor.⁶⁰⁰ The court equated the creation of an accessible format with that of a translation or other derivative work, but noted that even absent a finding of transformative use, a defendant may still satisfy the first fair use factor.⁶⁰¹ And the court did not limit its holding to individuals with disabilities relating to sight impairments, thereby implying that creating accessible formats for individuals with other types of disabilities also constitutes a “valid purpose.”⁶⁰²

Applying that logic, adding captions or audio description to a motion picture for purposes of creating accessible versions for students with disabilities, in compliance with disability laws, is a “valid purpose,” weighing in favor of fair use. Indeed, the passage of the ADA, IDEA, and Section 504 demonstrate Congress’s desire to provide meaningful access to students with other types of disabilities. As noted by the Register in her 2015 Recommendation regarding accessibility for e-books, “[t]he need for and desirability of access to such works by those with impairments—access that might otherwise be denied—present a quintessential case for an exemption to the prohibition on circumvention.”⁶⁰³ The 2015 Recommendation noted that the legislative history of the 1976 Copyright Act, the Chafee Amendment, and a 2014 congressional hearing on exceptions for the visually impaired all supported a conclusion of fair use.⁶⁰⁴ Congress

⁵⁹⁸ *Id.* at 13 (citing 2012 Recommendation at 146, 149).

⁵⁹⁹ *Id.*

⁶⁰⁰ *HathiTrust*, 755 F.3d at 102.

⁶⁰¹ *Id.* at 101–02.

⁶⁰² *See id.* at 103 (noting that “other disabled patrons, whose physical impairments prevent them from turning pages or from holding books, may also be able to use assistive devices to view all of the content contained in the image files for a book”).

⁶⁰³ 2015 Recommendation at 133.

⁶⁰⁴ *Id.* at 134 (citing H.R. REP. NO. 94-1476, at 73, *reprinted in* 1976 U.S.C.C.A.N. at 5687); 142 CONG. REC. 21796 (1996) (statement of Sen. Chafee) (the Amendment “sought to ‘end the unintended

has demonstrated the same “commitment to ameliorating the hardships” faced by persons with sensory disabilities in enacting the ADA, IDEA, and other laws.⁶⁰⁵

Turning to the second factor, proponents allow that the proposed exemption “would cover access to motion pictures, which come in many formats and genres.”⁶⁰⁶

Proponents assert, however, that under *HathiTrust*, this does not prevent a finding of fair use.⁶⁰⁷

As the Register noted in 2015, “[u]nder factor two, it is well established that motion pictures are generally creative and thus at the core of copyright’s protective purposes.”⁶⁰⁸ The Acting Register finds that this factor weighs against fair use, but given the valid purpose of the use and lack of negative impact on the market, it does not preclude a finding of fair use under the other factors.⁶⁰⁹

Proponents assert that the third factor weighs in favor of fair use because “[c]onverting a motion picture into an accessible format requires only a partial replication of the original copyrighted work,” as adding captions and/or audio description uses only the audio or visual components, respectively.⁶¹⁰ The Acting Register disagrees; although a disability services professional may arguably *use* only the aural or visual component, the entire motion picture is copied and imported into the captioning or describing software to add the captions or audio description to the motion picture.⁶¹¹ For some purposes, however, “it may be necessary to copy the entire copyrighted work,” and in such cases, the third

copyright owners’ access to current information’ by allowing groups that produce specialized formats for persons who are blind, visually impaired, or print disabled to do so without first having to gain permission from copyright owners”); *Copyright Issues in Education and for the Visually Impaired: Hearing Before the Subcomm. on Courts, Intellectual Property, and the Internet of the H. Comm. on the Judiciary*, 113th Cong. 3–4 (2014) (statement of Rep. Bob Goodlatte, Chairman, H. Comm. on the Judiciary) (“[T]he visually impaired community has the expectation and the right to participate in our community and the copyrighted works created within it.”)); *see also* S. REP. NO. 115-261 at 2 (noting that, in amending section 121, the Marrakesh Treaty Implementation Act aims to ensure that, “with appropriate safeguards, [] copyright restrictions should not impede the creation and distribution of such accessible format copies”).

⁶⁰⁵ *See HathiTrust*, 755 F.3d at 102.

⁶⁰⁶ ATSP et al. Class 2 Initial at 11.

⁶⁰⁷ *Id.*

⁶⁰⁸ 2015 Recommendation at 70.

⁶⁰⁹ *See HathiTrust*, 755 F.3d at 102 (finding second factor weighed against fair use, but did not preclude a finding of fair use under the other factors).

⁶¹⁰ ATSP et al. Class 2 Initial at 11.

⁶¹¹ ATSP et al. Class 2 Reply at 12; *see also* Tr. at 7:02–08, Hearing Ex. 2-A (Apr. 12, 2018) (ATSP); Tr. at 12:07–14 (Apr. 12, 2018) (Cowling, ATSP & Kent State Univ.).

factor “does not weigh against a finding of fair use.”⁶¹² In *HathiTrust*, the Second Circuit determined that it was reasonable to retain both text and image files of books, because the text files were required to create text-to-speech capabilities, and the image files provided additional ways for individuals with disabilities to access the works.⁶¹³ Similarly, the Acting Register concludes that it is necessary to copy the entire motion picture because disability services professionals are potentially adding captions and/or audio description to the entire length of the motion picture.

Fourth, proponents assert that making motion pictures accessible to students with disabilities would not negatively affect the market or value of copyrighted works.⁶¹⁴ Proponents allege that the same market failure for accessibility of e-books noted in *HathiTrust* plagues the video programming market, and state that “[b]ecause the market conditions do not support retroactively converting works into an accessible format, converting motion pictures to accessible formats has little effect on the potential market for converting works.”⁶¹⁵ Proponents reference litigation by disability advocacy groups against content distributors such as Netflix and Hulu as evidence of the market’s failure to distribute films in an accessible format unless forced to do so.⁶¹⁶

Further, proponents would limit the distribution of accessible versions to students by “uploading the accessible video and accompanying timed-text caption file or described audio to Kaltura, Kanopy Streaming or a similar private distribution platform.”⁶¹⁷ Proponents also note that commercial vendors used to create captioning and/or audio description “specify in their terms of agreement that no confidential information will be compromised—*i.e.*, that the video will not be disseminated—in the course of captioning or audio describing, consistent with similar agreements those vendors strike with copyright holders when they caption their content.”⁶¹⁸ Moreover, accessible versions would be created only from authorized versions of motion pictures.⁶¹⁹

⁶¹² *HathiTrust*, 755 F.3d at 98; *see also Campbell*, 510 U.S. at 586–87 (“extent of permissible copying varies with the purpose and character of the use”).

⁶¹³ *HathiTrust*, 755 F.3d at 103.

⁶¹⁴ ATSP et al. Class 2 Initial at 11–13.

⁶¹⁵ *Id.* at 13; *see also* ATSP et al. Reply at 18.

⁶¹⁶ ATSP et al. Class 2 Initial at 12.

⁶¹⁷ ATSP et al. Class 2 Reply at 13.

⁶¹⁸ *Id.*; Tr. at 61:07–15 (Apr. 12, 2018) (Band, LCA).

⁶¹⁹ ATSP et al. Class 2 Reply at 11 (“The proposed exemption would only enable disability services professionals to add accessibility features to motion pictures obtained through a lawful chain of distribution.”).

Although raised more in the context of the market effect under the section 1201 statutory factors, DVD CCA and AACCS LA assert that the proposed exemption is overbroad because it does not “account [for] the extent to which DVDs and [Blu-Ray discs] already include closed captions and audio description.”⁶²⁰ Joint Creators I raise a similar concern.⁶²¹ Joint Creators I also assert that the record requires more detail to assess fair use generally (and factor four specifically).⁶²² Those concerns are discussed below in the context of alternatives to circumvention. In addition, Joint Creators I express concern that proponents “do not address whether the exemption would allow permanent copies of motion pictures to be made from streaming subscription services that typically do not allow for permanent downloads.”⁶²³ As litigation against content distributors such as Netflix shows, however, legal obligations to provide accessible formats extend beyond permanent downloads.⁶²⁴

This factor weighs in favor of fair use, despite the seemingly more varied marketplace availability of accessible formats for motion pictures than in the e-books context. While opponents persuasively demonstrate that the motion picture industry has made great strides towards providing more accessible content,⁶²⁵ proponents submit equally compelling evidence that the overall market has not yet adequately met the needs of individuals with disabilities by retroactively offering catalog videos in accessible formats, and that in some cases, new works are not being issued in accessible formats.⁶²⁶ When an accessible version is not available in the marketplace, the proposed use is less likely to interfere with the primary or derivative markets for the motion picture.⁶²⁷ The record also reflects that the accessible versions would be created from authorized versions of motion pictures⁶²⁸ and would typically be disseminated through a password-protected mechanism—as is traditionally done by disability service professionals when

⁶²⁰ DVD CCA & AACCS LA Class 2 Opp’n at 2.

⁶²¹ Joint Creators I Class 2 Opp’n at 3.

⁶²² *See id.* at 10–12.

⁶²³ *Id.* at 11.

⁶²⁴ *See* Complaint at ¶¶ 47–55, *Nat’l Ass’n of the Deaf v. Netflix, Inc.*, No. 3:11-cv-30168 (D. Mass. June 16, 2011) (asserting ADA claim against Netflix for failure to provide content with captioning).

⁶²⁵ *See* Joint Creators I Class 2 Opp’n at 4 (citing Nondiscrimination on the Basis of Disability by Public Accommodations—Movie Theaters; Movie Captioning and Audio Description, 79 Fed. Reg. 44,976, 44,989 (Aug. 1, 2014)).

⁶²⁶ *See* ATSP et al. Class 2 Initial at 12–13; ATSP et al. Class 2 Reply at 9.

⁶²⁷ *See Hathitrust*, 755 F.3d at 103.

⁶²⁸ ATSP et al. Class 2 Reply at 11.

providing accessible materials⁶²⁹—thereby reducing the likelihood of negatively affecting the market for the copyrighted motion pictures.

Overall, the Acting Register concludes that proponents have provided sufficient detail to assess whether the proposed uses are likely to constitute fair use. As noted above, the present request is more tailored and the evidence submitted is more specific than past exemption requests.⁶³⁰ Proponents have explained how captions and audio descriptions would be created and added to motion pictures.⁶³¹ Citing the legislative history of the 1976 Copyright Act, the Chafee Amendment, the *HathiTrust* decision, and other existing disability laws, Class 2 proponents offer credible support for their claim that converting motion pictures into accessible formats for students with disabilities by adding captions and/or audio description is a noninfringing fair use.

In sum, the Acting Register finds that for purposes of this rulemaking, proponents have made a compelling case that making motion pictures accessible to students with disabilities by adding captions and/or audio description is likely noninfringing.

c. Causation

The Acting Register finds that proponents have met their burden of showing that the statutory prohibition on circumvention of access limits their ability to add captions or audio description to motion pictures for purposes of providing accessible versions to students with disabilities. But for the prohibition, users likely could gain lawful access to the copyrighted motion pictures for that purpose.

d. Asserted Adverse Effects

In discussing the purported adverse effects and addressing the section 1201 statutory factors, proponents combined discussion of the first three factors because “the prohibitions on circumvention have a similar impact under each factor.”⁶³² Specifically, proponents assert that without the proposed exemption, disability services professionals are “inhibited from making works available for students with disabilities,” which “restrict[s] the availability of works for educational purposes” and “ha[s] a negative

⁶²⁹ *Id.* at 13; *see also* Tr. at 18:05–16 (Apr. 12, 2018) (Cowling, ATSP & Kent State Univ.).

⁶³⁰ *Compare* 2012 Recommendation at 149 (noting “[m]ost of the uses relating to the creation of captions and descriptive audio proposed by the proponents [were] so general that it [was] impossible to evaluate whether such uses would be noninfringing.”); Section 1201 Report at 87–88 (stating that there has been “very little in the records from prior rulemaking proceedings regarding other entertainment products such as . . . motion pictures”).

⁶³¹ ATSP et al. Class 2 Reply at 12–13.

⁶³² ATSP et al. Class 2 Initial at 14.

impact on teaching and scholarship.”⁶³³ Proponents identified examples of motion pictures either lacking accessibility features or it being unclear whether captions and/or audio description are available.⁶³⁴ In addition, proponents identified over a dozen examples where K-12 educators requested captioning or audio descriptions to make accessible versions for students with disabilities.⁶³⁵

Regarding the fourth statutory factor, proponents argue that *not* allowing circumvention will negatively affect the market for the copyrighted motion pictures because educational institutions will not use content that they cannot easily convert into an accessible format.⁶³⁶ For example, the University of California, Berkeley responded to a letter from the DOJ regarding its alleged failure to make free course and lecture content accessible by stating that DOJ’s requested remedial measures were too costly, and that it therefore “might not be able to continue to provide free public content under the conditions laid out by the Department of Justice to the extent [it had] in the past.”⁶³⁷

Proponents also assert that viable alternatives to circumvention do not exist. According to proponents, copyright owners have in some cases failed to respond to or grant requests by disability services professionals for permission to make motion pictures accessible;⁶³⁸ in other cases, they note, locating the actual copyright owner is confusing.⁶³⁹ Proponents maintain that sourcing accessible format versions that a school or library does not already possess is burdensome and unworkable, particularly because disability services professionals must provide accessible versions in a timely manner, and that requiring educational institutions to repurchase them, “simply because the content creators and distributors did not make those films accessible at the outset is not

⁶³³ *Id.* at 1.

⁶³⁴ See ATSP et al. Class 2 Reply at 3 (stating that 70% of the more than 28,000 DVDs at Emory Heilbrun Music & Media Library lack accessibility features), 19–20 (appendix of exemplary inaccessible materials).

⁶³⁵ ATSP et al. Class 2 Post-Hearing Resp. at 2.

⁶³⁶ ATSP et al. Class 2 Initial at 15–16; see also *id.* at 18 (testimony of unidentified Kent State University disability services professional).

⁶³⁷ *A Statement on Online Course Content and Accessibility*, UC BERKELEY (Sept. 13, 2016), <http://news.berkeley.edu/2016/09/13/a-statement-on-online-course-content-and-accessibility> (noting the “department’s findings do not implicate the accessibility of educational opportunities provided to our enrolled students”). Proponents note that other universities, such as Harvard and MIT, have been sued for similarly not making accessible versions of content available. ATSP et al. Class 2 Reply at 9.

⁶³⁸ ATSP et al. Class 2 Initial at 12, 18.

⁶³⁹ *Id.* at 17–18 (testimony from University of Illinois disability services professional that “it is hard to determine who is the actual copyright holder in many of the cases where we have old videos or a documentary where the publishing company has gone under”).

only economically infeasible, but would contravene the ADA's principles against imposing unnecessary costs to improve accessibility for people with disabilities."⁶⁴⁰

In addition, proponents claim that other non-circumventing alternatives—such as creating transcripts of a motion picture—are burdensome because they “often must be supplemented with real-time interpreting or a transcriber summary,” and may be “considered inadequate accommodation for students with disabilities.”⁶⁴¹ Proponents also claim that captioning provided through YouTube is “poor” and thus not an effective accommodation.⁶⁴²

Neither Joint Creators I nor DVD CCA and AACCS LA contest the importance of making works available to students with disabilities on an equal basis. But opponents generally contend that the wide availability of versions with captioning and/or audio description already in the market constitutes a viable alternative to circumvention. They note that “[n]early all optical disc media (DVD, Blu-ray, and Ultra HD) released by MPAA members are distributed with captions,” and that the Federal Communications Commission (“FCC”) requires (with some exceptions) television programming distributed on or after January 1, 1998 to have captions.⁶⁴³ The FCC also requires captioned online video when it previously appeared with captions on U.S. television after certain dates.⁶⁴⁴ Joint Creators I note that the MPAA and its members in particular have been commended by the DOJ for efforts to provide closed captioning and audio description for motion pictures.⁶⁴⁵ DVD CCA and AACCS LA similarly state that proponents “have failed to allege a single DVD or Blu-ray title that lacks captioning and audio description.”⁶⁴⁶ Opponents also note an online list of motion pictures available

⁶⁴⁰ ATSP et al. Class 2 Reply at 4, 10; *see also* Tr. at 37:09–12 (Apr. 12, 2018) (Reid, ATSP).

⁶⁴¹ ATSP et al. Class 2 Initial at 16.

⁶⁴² *Id.* at 17 (testimony of unidentified West Virginia University disability services professional).

⁶⁴³ Joint Creators I Class 2 Opp’n at 5 (citing 47 C.F.R. § 79.1(b)(1)).

⁶⁴⁴ 47 C.F.R. § 79.4(b)(1); *see also* Joint Creators I Class 2 Opp’n at 5 (“Nearly 100% of content streamed by Hulu, Netflix, Amazon Video, and other online services that publicly perform MPAA members’ works is captioned.”), 6 (“many motion pictures are now available with audio descriptions”), 7 (“iTunes now offers over 600 movies with audio description tracks” and “Netflix offers description for over 500 original shows, documentaries, TV series, and children’s programming”) (citations omitted).

⁶⁴⁵ Joint Creators I Class 2 Opp’n at 4–5 (citing Nondiscrimination on the Basis of Disability by Public Accommodations-Movie Theaters; Movie Captioning and Audio Description, 79 Fed. Reg. 44,976, 44,989 (Aug. 1, 2014) (“[M]ovie studios appear committed to making their movies accessible to individuals who are deaf or hard of hearing or blind or have low vision, and the Department commends their efforts.”)).

⁶⁴⁶ DVD CCA & AACCS LA Class 2 Opp’n at 3.

with audio descriptions maintained by the American Council for the Blind,⁶⁴⁷ and observe that movie theatres are required to provide access to both captioning and audio description, when available.⁶⁴⁸

Still, opponents acknowledge that “not every motion picture is available in accessible formats,”⁶⁴⁹ and the record reflects this unavailability, for example, regarding certain user-generated content and many back catalog works.⁶⁵⁰ Moreover, the record reveals that while closed captioning is significantly available for video content, audio description lags behind.⁶⁵¹

The Acting Register concludes that the statutory factors favor an exemption. As the Register noted in 2012, “[g]enerally, public policy favors removing impediments to access for individuals with disabilities.”⁶⁵² An exception to promote accessibility “is not merely a matter of convenience, but is instead intended to enable individuals [with disabilities] to have meaningful access to the same content that individuals without such impairments are able to perceive.”⁶⁵³ The proposed exemption is aimed at allowing the wide range of motion pictures that are available to the general population to be accessed and enjoyed by students with disabilities. For these students, the exemption may represent the difference between having and not having access to the works available to other students. Indeed, the U.S. government has expressed that students with disabilities “must receive an equal opportunity to participate in and benefit” from the

⁶⁴⁷ *Id.*; Joint Creators I Class 2 Opp’n at 6.

⁶⁴⁸ Joint Creators I Class 2 Opp’n at 6. During a meeting with the Office, Joint Creators I asserted that available market technologies—including those used within a movie theater, such as closed-captioning glasses, or headsets for listening to audio description tracks—are viable alternatives to circumvention that could be used for educational purposes. Joint Creators I Class 2 *Ex Parte* Meeting Summary at 1 (July 24, 2018). The record is far too sparse, however, to conclude whether such technologies are or are not reasonable alternatives.

⁶⁴⁹ Joint Creators I Class 2 Opp’n at 4.

⁶⁵⁰ *See* Tr. at 29:21–30:17 (Apr. 12, 2018) (Band, LCA) (noting the exemption is not for “new content that is being released,” but rather “older films, foreign films, some of the independent films . . . older documentaries . . . not [the] sort of current releases that have all of these features built into them”); Tr. at 13:05–12 (Apr. 12, 2018) (Reid, ATSP) (stating that although “YouTube has captioning services that can be invoked by the owner of a video that is posted on YouTube,” “[t]he rub is that, in general, the owner has to approve the captions being included in the file”).

⁶⁵¹ Joint Creators I Class 2 Opp’n at 6–7 (noting “marketplace improvements” for audio description, but generally describing more limited availability).

⁶⁵² 2012 Recommendation at 21 (citing 42 U.S.C. § 12101(a)(7) (“[T]he Nation’s proper goals regarding individuals with disabilities are to assure equality of opportunity, full participation, independent living, and economic self-sufficiency for such individuals.”); 17 U.S.C. § 121.

⁶⁵³ 2015 Recommendation at 136; 2012 Recommendation at 22.

goods and services offered by colleges and universities, and that colleges and universities are prohibited from offering students with disabilities aids, benefits, and services that are “unequal to the opportunity afforded others.”⁶⁵⁴

Importantly, however, the recommendation must also take into account that for a significant number of feature films and other audiovisual works, the market already provides accessible versions, which may alleviate the need to circumvent certain works. In that respect, the market for audiovisual works appears different than that of e-books.⁶⁵⁵ The legislative history for section 1201 states that in assessing the impact of the prohibition on the ability to make noninfringing uses, the Register and the Librarian “should take into consideration the availability of works in the particular class in other formats that are not subject to technological protections.”⁶⁵⁶ Searches for the motion pictures given as examples lacking accessibility features⁶⁵⁷ resulted in locating a significant number with captioning, and two with audio description. Indeed, out of the thirty-five DVDs described as not having closed captions submitted in proponents’ reply comment, eleven were advertised as available with closed captioning on Amazon.com; the same was true of twelve of the fourteen videos described as inaccessible for K-12 uses.⁶⁵⁸ Certain titles were also available through other mainstream platforms including

⁶⁵⁴ Dep’t of Justice, Civil Rights Div. & U.S. Dep’t of Educ., Office for Civil Rights, Joint “Dear Colleague” Letter: Electronic Book Readers 1–2 (June 29, 2010), <https://www2.ed.gov/about/offices/list/ocr/letters/colleague-20100629.pdf>.

⁶⁵⁵ During the 2015 rulemaking, the Association of American Publishers (“AAP”) acknowledged that despite the proliferation of e-book readers, the market “do[es] not yet offer inherent accessibility across such platforms or in the commercially-available versions of such works for consumers with print disabilities.” 2015 Recommendation at 133 (citing AAP 2015 Class 9 Initial at 1 (comments in support of a class for literary works distributed electronically for assistive technologies)).

⁶⁵⁶ House Manager’s Report at 7.

⁶⁵⁷ See ATSP et al. Class 2 Post-Hearing Resp. at 2; ATSP et al. Class 2 Reply at 19–20.

⁶⁵⁸ Compare ATSP et al. Class 2 Reply at 19–20, with, e.g., *The Accused*, AMAZON, <https://www.amazon.com/Accused-Tara-Timpone/dp/B074J5PRMJ/>; *Black Robe*, AMAZON, <https://www.amazon.com/Black-Robe-Lothaire-Bluteau/dp/1573623903/>; *Breaker Morant*, AMAZON, <https://www.amazon.com/gp/product/B00A5IXZXQ>; *Chasing Freedom*, AMAZON, <https://www.amazon.com/Chasing-Freedom-Juliette-Lewis/dp/B0009XT8VA>; *Days of Heaven*, AMAZON, <https://www.amazon.com/Days-Heaven-Richard-Gere/dp/B001KT3JQ2/>; *Inside Job*, AMAZON, <https://www.amazon.com/Inside-Job-Matt-Damon/dp/B0041KKYBA>; *The Marquise of O...*, AMAZON, <https://www.amazon.com/Marquise-Edith-Clever/dp/B010ONY5B2>; *Perceval*, AMAZON, <https://www.amazon.com/Perceval-Fabrice-Luchini/dp/B00004U0FN/>. The other titles searched were *Michael Clayton*, *Varsity Blues*, *Through Deaf Eyes*, *Lewis and Clark Great Journey West* (National Geographic), *The Men Who Built America* (History Channel series), *The Presidents* (History Channel), *The Star of Bethlehem* (Mpower Pictures), *Iron Jawed Angels*, *The Lip Reader* (*Seinfeld* episode), *Switched at Birth*, *Before the Flood*, *The War of 1812* (History Channel), *Platoon*,

Netflix or Google Play. As proponents themselves acknowledge, the motion picture industry has adjusted to meet the needs of individuals with disabilities by offering accessible versions,⁶⁵⁹ and proponents in fact hope circumvention becomes unnecessary in the future as the market more fully meets disability needs.⁶⁶⁰ Accordingly, as detailed below, the Acting Register recommends tailoring an exemption to take into account and further incentivize the marketplace offerings, including by requiring a reasonable market check for usable copies, while balancing the legitimate needs of disability services offices to create accessible versions.

3. NTIA Comments

NTIA recommends that the proposed exemption allow “disability services offices and equivalent units” to “circumvent TPMs on audiovisual works in educational settings to add accessibility features” to motion pictures,⁶⁶¹ including “through the provision of closed and open captions and audio description.”⁶⁶² Its proposal thus would extend to “accessibility features” generally,⁶⁶³ despite proponents limiting their arguments to captioning and audio description. In agreement with the Acting Register, NTIA believes that the exemption should apply “regardless of grade level” of the student,⁶⁶⁴ and apply to both non-profit and for-profit educational institutions required by disability laws to make motion pictures accessible to students with disabilities.⁶⁶⁵ NTIA also recommends that the exemption incorporate “a broad, good-faith based definition of ‘individual with disability.’”⁶⁶⁶

Regarding whether to require the educational institution to conduct a reasonable market check before circumventing, NTIA maintains that “preconditioning circumvention on disability rights offices searching the market for an accessible copy would be impracticable,”⁶⁶⁷ and could perhaps result in a student not being able to watch the

Front of the Class: How Tourette Syndrome Made Me the Teacher I Never Had, and America & Lewis Hine.

⁶⁵⁹ ATSP et al. Class 2 *Ex Parte* Meeting Summary at 2 (July 24, 2018).

⁶⁶⁰ *See id.*; Tr. at 40:02–04 (Apr. 12, 2018) (Reid, ATSP).

⁶⁶¹ NTIA Letter at 30.

⁶⁶² *Id.* at 36.

⁶⁶³ *Id.* at 30.

⁶⁶⁴ *Id.* at 35.

⁶⁶⁵ *Id.* at 31.

⁶⁶⁶ *Id.* at 35–36.

⁶⁶⁷ *Id.* at 34.

motion picture when needed.⁶⁶⁸ But as discussed below, the record suggests that these searches are already occurring. The Acting Register believes that NTIA's concerns can be addressed through regulatory language providing that educational institutions may circumvent to add captions or audio description if an accessible version cannot be obtained in a timely manner.

4. Conclusion and Recommendation

The Acting Register is sensitive to the need to ensure that access controls do not prevent students with disabilities from gaining meaningful access to motion pictures distributed in electronic formats.⁶⁶⁹ After careful consideration of the evidentiary record and relevant legal authorities, the Acting Register concludes that the prohibition on circumvention is adversely affecting the ability of educational institutions to offer accessible formats of motion pictures on an equal basis in conformance with their legal responsibilities. The Acting Register recommends that an exemption be granted, with a few adjustments to the language outlined in the petition.

First, the Acting Register recommends that the exemption be available for units of an educational institution engaged in and/or responsible for the provision of accessible options. The petition language includes "disability services offices, organizations that support people with disabilities, libraries, and other units at educational institutions that are responsible for fulfilling those institutions' legal and ethical obligations to make works accessible to people with disabilities."⁶⁷⁰ The Acting Register recognizes that educational institutions may offer disability services from different (or multiple) locations within an institution, depending on their configuration, and it is important that certain educational institutions are not excluded merely because of which structural component offers disability services.⁶⁷¹ Structuring the exemption this way is intended to recognize these varied approaches to offering disability services.⁶⁷²

The Acting Register declines the suggestion to limit the exemption to "nonprofit organizations or governmental agencies with a primary mission related to assisting persons with disabilities," which is how the Chafee Amendment defines an "authorized entity" entitled to reproduce or to distribute certain copies in specialized formats

⁶⁶⁸ *Id.* at 35.

⁶⁶⁹ This concern is reflected in prior exemptions for accessibility. See 2015 Recommendation at 137; 2012 Recommendation at 24–25; 2006 Recommendation at 37; 2003 Recommendation at 64.

⁶⁷⁰ ATSP et al. Class 2 Pet. at 3.

⁶⁷¹ See Tr. at 57:16–58:11 (Apr. 12, 2018) (Reid, ATSP); ASTP et al. Initial at 19 (addressing accessibility requires "multiple departments" working together).

⁶⁷² See Tr. at 62:09–63:13 (Apr. 12, 2018) (Reid, ATSP).

exclusively for use by the blind or other persons with disabilities.⁶⁷³ The Chafee Amendment is not limited to providing accessible formats in the educational context, as is the proposed exemption. Moreover, for-profit educational institutions are also subject to the ADA.⁶⁷⁴ The Acting Register thus believes that the proposed exemption should apply to for-profit and nonprofit educational institutions, specifically kindergarten through twelfth-grade institutions, colleges, and universities.

Second, there was discussion of how to define “disabilities.” Proponents note that the ADA, IDEA, and Section 504 define “disabilities” differently, and ask that the exemption be tied “to circumvention behavior performed with a good faith intent to comply with a federal or state disability law or otherwise serve the educational needs of a student with a disability recognized under federal or state disability law.”⁶⁷⁵ Proponents also ask that an exemption not be limited by “the legal classification of students who might ultimately view an accessible version of the video,” as the accessible version “might be viewed by disabled and non-disabled students alike in a classroom context” and should not be required to be distributed separately from the non-accessible version (resulting in different treatment of students rather than equal access).⁶⁷⁶ Proponents request that the exemption allow an educational institution to undertake proactive accessibility efforts to “comply with the terms of a settlement of a disability law claim, to meet in advance the terms of an Individual Education Plan for a student with a disability, or simply on the institution’s own ethical initiative.”⁶⁷⁷ Taking into account these concerns, the recommended exemption permits circumvention where the accessible version is created as a necessary accommodation for a student or students with disabilities under a federal or state disability law, such as the ADA, IDEA, or Section 504.

Third, the proposed exemption would allow circumvention only after the educational institution has conducted a reasonable market check and determined that an accessible version is not available, not available at a fair price, or not available in a timely way.⁶⁷⁸ While ASTP objects that it would be “unrealistic and unduly costly” to require a search for readily available accessible copies, the record suggests that these searches are already

⁶⁷³ See Joint Creators I Class 2 Opp’n at 20–21 (proposing limit); see also 17 U.S.C. § 121(d)(1).

⁶⁷⁴ See 42 U.S.C. § 12181(7)(J) (stating that for purposes of the ADA, a private “nursery, elementary, secondary, undergraduate, or postgraduate private school, or other place of education” are “considered public accommodations”).

⁶⁷⁵ ASTP et al. Class 2 Post-Hearing Resp. at 4.

⁶⁷⁶ *Id.*

⁶⁷⁷ *Id.*

⁶⁷⁸ Determining whether an accessible version can be obtained in a “timely” manner will depend on whether it can be received in time to serve the student with disabilities as a necessary accommodation.

occurring, and section 1201 requires taking into account the wide availability of accessible versions—particularly closed captioned versions—available in the market.⁶⁷⁹

Requiring a market check is not foreign to copyright law. Under the section 108 exception for libraries and archives, the institution must expend a “reasonable effort” to search for an “unused” replacement at a “fair price” before making a copy for replacement purposes.⁶⁸⁰ In its Section 108 Discussion Document, the Office proposed retaining the market check requirement because it “will prevent replacement copies being made for popular and available works.”⁶⁸¹ In response to concerns about it being difficult to conduct market checks on a large scale, the Office concluded that “market checks themselves will not be onerous because of institutions’ networks of providers and easily searchable online sales platforms offering access to new and used items.”⁶⁸²

In this case, proponents acknowledge that even without a formal requirement, disability services professionals typically conduct some type of de facto market check by investigating “the most economic decision,” which could mean making an accessible version, or just purchasing one, depending on the circumstances.⁶⁸³ As one participant explained, “it’s a lot of work” to create an accessible version, and “if someone else has done it . . . that’s what you want; you don’t want to have to go to that effort.”⁶⁸⁴ And regardless of whether a decision is made to create an accessible version, outsource the creation of an accessible version, or purchase an accessible version, the educational institution would incur a cost. By adding a “reasonable” market check requirement, the Acting Register does not expect disability services professionals to scour the market, spend exorbitant fees, or wait months for an accessible version to arrive from a seller. If an institution determines, after a reasonable search of available platforms such as

⁶⁷⁹ To that end, while a reasonable market check is not incorporated into the existing temporary exemption for e-books and assistive technologies, 37 C.F.R. § 201.40(b)(2) (2016), it would not make sense to do so because the record indicated that only a “fraction of e-book titles are currently available in accessible formats.” 2015 Recommendation at 135. As noted above, the market for e-books differs from that for motion pictures. *Id.* at 133 (citing 2015 AAP Class 9 Initial at 1 (comments in support of a class for literary works distributed electronically for assistive technologies)).

⁶⁸⁰ 17 U.S.C. § 108(c)(1).

⁶⁸¹ U.S. COPYRIGHT OFFICE, SECTION 108 OF TITLE 17 28 (2017), <https://www.copyright.gov/policy/section108/discussion-document.pdf> (“Section 108 Discussion Document”).

⁶⁸² Section 108 Discussion Document at 34.

⁶⁸³ *See* Tr. at 33:08–15 (Apr. 12, 2018) (Galleher, ATSP).

⁶⁸⁴ Tr. at 29:21–30:10 (Apr. 12, 2018) (Band, LCA) (also suggesting that as a practical matter, a limited market check requirement will not be burdensome); *see also* Tr. at 44:02–05 (Apr. 12, 2018) (Reid, ATSP) (“nobody in a disability services office is particularly interested in re-captioning or re-describing a program”).

Amazon.com or Netflix, that it must create an accessible version as a necessary accommodation for a student with disabilities, then it may proceed. In this way, the market check requirement seeks to prevent copies being made of works already available in accessible formats, while supporting the motion picture industry's effort to further expand the availability of accessible versions in the marketplace.

Fourth, the recommended exemption would require the accessible versions to be provided to students and stored by the educational institution in a manner that reasonably prevents unauthorized further dissemination of the work. This reflects the record testimony that accessible versions of motion pictures are made available to students in the same manner as that for students without an accommodation; that is, either shown in the classroom or distributed to students through a private distribution platform such as Kaltura or Kanopy Streaming.⁶⁸⁵

The Acting Register therefore recommends an exemption to permit circumvention of technological measures protecting motion pictures (including television shows and videos) on DVDs, Blu-Ray discs, and via digital transmissions to add captions and/or audio description for students with disabilities. Accordingly, the Acting Register recommends that the Librarian designate the following class:

(i) Motion pictures (including television shows and videos), as defined in 17 U.S.C. 101, where the motion picture is lawfully acquired on a DVD protected by the Content Scramble System, on a Blu-ray disc protected by the Advanced Access Content System, or via a digital transmission protected by a technological measure, where:

(A) Circumvention is undertaken by a disability services office or other unit of a kindergarten through twelfth-grade educational institution, college, or university engaged in and/or responsible for the provision of accessibility services to students, for the purpose of adding captions and/or audio description to a motion picture to create an accessible version as a necessary accommodation for a student or students with disabilities under an applicable disability law, such as the Americans With Disabilities Act, the Individuals with Disabilities Education Act, or Section 504 of the Rehabilitation Act;

⁶⁸⁵ ATSP et al. Class 2 Reply at 13; *see* Joint Creators I Class 2 Opp'n at 11–12 (questioning planned dissemination of works). The Office cautions against the mishandling of circumvented motion pictures, which could create infringement liability. *See Google Books*, 804 F.3d at 229 (while recognizing that the creation of digital copies of books for libraries to make fair use does not itself constitute infringement, noting that “libraries might incur liability by negligent mishandling of, and failure to protect, their digital copies, leaving them unreasonably vulnerable to hacking”).

(B) The educational institution unit in paragraph (b)(2)(i)(A) of this section has, after a reasonable effort, determined that an accessible version cannot be obtained at a fair price or in a timely manner; and

(C) The accessible versions are provided to students or educators and stored by the educational institution in a manner intended to reasonably prevent unauthorized further dissemination of a work.

(ii) For purposes of this paragraph (b)(2), “audio description” means an oral narration that provides an accurate rendering of the motion picture.

C. Proposed Class 3: Audiovisual Works—Space-shifting

1. Background

a. Summary of Proposed Exemption

Proposed Class 3 would allow circumvention of technical measures protecting motion pictures and other audiovisual works to engage in “space-shifting.” As the 2015 rulemaking described the Copyright Office’s understanding, “[s]pace-shifting’ occurs when a work is transferred from one storage medium to another, such as from a DVD to a computer hard drive.”⁶⁸⁶ In this proceeding, Chris De Pretis petitioned for an exemption to allow circumvention by individuals to create a personal digital backup of content for private use.⁶⁸⁷ This proposal is similar to those sought in previous rulemakings.⁶⁸⁸

The Copyright Office also received a petition from OmniQ, a corporate entity, proposing an exemption to allow so-called “non-reproductive” space-shifting, including for commercial uses. Specifically, OmniQ requested an exemption to:

[P]ermit the circumvention of technological protection measures that control access to [1] Audiovisual Works, specifically Motion Pictures, that [2] have been reproduced in digital Copies lawfully made when the works were Fixed by embodying the work via digital information in an optical disc, such as a DVD or blu-ray disc. The works need to be accessed [3] for the purpose of space-shifting the work Fixed in that

⁶⁸⁶ 2015 Recommendation at 107 & n.645.

⁶⁸⁷ De Pretis Class 3 Pet. at 2 (requesting “to permit private owners of Movies and Television on DVD and Blu Ray Discs, to allow circumventing protection in order to create a personal digital backup of content for private use in order to save the content in the event that something happens to the original, fragile disc as well as to play the content on tools that do not play discs (newer computer; iPads; iPhones; etc.)”).

⁶⁸⁸ See, e.g., 2015 Recommendation at 107.

particular material object (an optical disc such as a DVD or blu-ray disc) to a more useful material object so that [4] users who do not own or have access to the Device, Machine or Process needed to privately perform the work (i.e., needed to watch the movie) may still enjoy private performances of the work from that lawfully made copy, shifted to a usable strata. Such viewers may include persons who do not own or have reasonable access to a DVD player, whose latest laptop computer follows the trend of not including an optical disc drive, or whose DVD player no longer functions. . . .⁶⁸⁹

While both petitions seek to space-shift content from disc media to facilitate private performances, OmniQ claims that its request encompasses “non-reproductive space-shifting,” which it distinguishes from the De Pretis petition, calling it “radically different, in that no back-up or convenience copies are made at all.”⁶⁹⁰

With regard to its proposal, OmniQ does not seek an exemption tied to its own technology, but rather “an exemption to use any method now known or later developed of moving the fixation from the disc to something else, without reproduction.”⁶⁹¹

A third proponent, SolaByte Corporation, filed a one-page comment in support of OmniQ.⁶⁹² At the public hearing, SolaByte elaborated that it seeks to make use of the exemption for its own space-shifting activities. SolaByte stated at the hearing that it wishes to grant a user access to master cloud copies of audiovisual works that can be streamed on a user’s personal device after SolaByte authenticates that the user has the same content on disc media.⁶⁹³ SolaByte said that it seeks to create a library of works that would be offered to its users as “replacements” for their disc copies.⁶⁹⁴ While

⁶⁸⁹ OmniQ Class 3 Pet. at 2 (bracketed numbers in original) (citation omitted).

⁶⁹⁰ OmniQ Class 3 Initial at 2–3.

⁶⁹¹ *Id.* at 19. OmniQ’s comments also suggest it supports an exemption even if the reproduction right is implicated by space-shifting activities. *Id.* at 31.

⁶⁹² SolaByte Class 3 Reply at 2.

⁶⁹³ Tr. at 8:08–14:08, Hearing Ex. 3-A at 5 (Apr. 11, 2018) (Chatfield, SolaByte); Tr. at 10:18–12:03 (Apr. 11, 2018) (Chatfield, SolaByte).

⁶⁹⁴ Tr. at 8:08–14:08, Hearing Ex. 3-A at 6 (Apr. 11, 2018) (Chatfield, SolaByte) (“We ask Librarian to authorize an exemption to allow the creation of replacement content to support this service[.]”); Tr. at 45:22–46:01 (Apr. 11, 2018) (Chatfield, SolaByte). SolaByte appears to still be developing the details of its business. During an ex parte communication, SolaByte described a different model whereby a customer would access a private cloud copy of a work space-shifted by SolaByte from the customer’s own disc, as opposed to streaming from a master cloud copy not made from the customer’s disc and that multiple customers would access. SolaByte suggested that limited simultaneous streams from that copy would still be permitted. SolaByte also elaborated that under either model its customers would be charged a monthly subscription fee to

SolaByte’s testimony at the hearing is untimely insofar as it can be interpreted as seeking an exemption tailored to its specific technology, the Acting Register considers the testimony to the extent it supports the proposal outlined in the NPRM.

In addition, Consumers Union and Free Software Foundation, Inc. (“FSF”) filed comments generally supporting this exemption, but did not provide any evidence or substantive argument regarding the merits of the specific proposals. Class 3 was opposed by DVD CCA, AACCS LA, and Joint Creators II.

b. Overview of Issues

In prior rulemakings, while past Registers have “recognize[d] the consumer and policy appeal”⁶⁹⁵ of an exemption for space-shifting, they have regularly declined to recommend such an exemption. As the Register summarized in the last triennial proceeding:

The Register has declined to recommend an exemption for such uses in the past four rulemakings because the proponents have failed to establish a legal or factual record sufficient to establish that the space-shifting and/or format-shifting of audiovisual works, e-books, and other copyrighted works constitutes a noninfringing use. When considering space- or format-shifting for the transfer of copyrighted works to different devices or the creation of back-up copies, the Register has consistently found insufficient legal authority to support the claim that these activities are likely to constitute fair uses under current law.

In particular, the Register has previously noted that “no court has held that ‘space-shifting’ is a fair use,” and that current law “does not guarantee access to copyrighted material in a user’s preferred format.” In the 2012 rulemaking, the Register found that proponents had not adequately demonstrated that space-shifting was a transformative use as opposed to “simply a means for an individual consumer to access content for the same entertainment purpose as the original work.” While the Register has acknowledged that judicial interpretation of fair use could someday evolve to include certain space-shifting activities, as stated in the last proceeding, “the Section 1201 rulemaking process is not the forum in which to break new ground on the scope of fair use.”⁶⁹⁶

maintain access to the space-shifted copies. Both models have been considered by the Acting Register. SolaByte Class 3 *Ex Parte* Meeting Summary at 2–6 (Sept. 10, 2018).

⁶⁹⁵ 2015 Recommendation at 119.

⁶⁹⁶ *Id.* at 108–09 (citations omitted).

In 2015, the Register again declined to recommend an exemption for space-shifting, explaining that she “does not find any fair use precedent that sanctions broad space-shifting or format-shifting,” and that the proponents had failed to “sufficiently demonstrate[] that services, including online download or streaming services, disc-to-digital services, digital rights lockers systems, ‘TV Everywhere’ or similar on-demand services, do not provide reasonable alternatives to circumvention.”⁶⁹⁷

Regarding OmniQ specifically, and as addressed further below, the company claims to have a patent-pending method of space-shifting that is non-reproductive, and therefore noninfringing, because the copyright owner’s exclusive right to reproduce the copyrighted work under 17 U.S.C. § 106(1) is purportedly not implicated.⁶⁹⁸ OmniQ describes its space-shifting technology as “a scanner combined with a shredder.”⁶⁹⁹ While OmniQ lacks a working prototype,⁷⁰⁰ the Acting Register understands that the technology will supposedly work essentially as follows: (1) a small segment of the data on a DVD or Blu-ray disc within which a copyrighted motion picture is embodied is copied into a computer’s volatile memory; (2) that segment of the disc is destroyed; (3) the data in volatile memory is copied into the computer’s non-volatile memory; (4) the data in volatile memory is destroyed; (5) the process is repeated for the next small segment of data on the disc until all of the data on the disc has been transferred to the computer’s hard drive, leaving the disc unusable.⁷⁰¹ If the exemption is granted, OmniQ intends to create an online video store by space-shifting copies of motion pictures from DVDs and Blu-ray discs and then selling or renting the copies by space-shifting them from OmniQ’s server to its customers’ devices (and back again in the case of rentals).⁷⁰²

OmniQ participated in the 2015 rulemaking and advanced similar contentions. The Register determined that she could not credit OmniQ’s arguments about its technology being non-reproductive because OmniQ “fail[ed] to establish that the technology it advocates has actually been developed.”⁷⁰³ Moreover, the Register found OmniQ’s legal arguments on the matter unavailing.⁷⁰⁴

⁶⁹⁷ *Id.* at 120, 124.

⁶⁹⁸ See OmniQ Class 3 Initial at 2–5.

⁶⁹⁹ Tr. at 22:10–11 (Apr. 11, 2018) (Mitchell, OmniQ).

⁷⁰⁰ See Tr. at 40:22–41:10 (Apr. 11, 2018) (Mitchell, OmniQ); OmniQ Class 3 Initial at 17–20.

⁷⁰¹ See OmniQ Class 3 Initial at Exs. 1, 3; Tr. at 20:20–21:18 (Apr. 11, 2018) (Mitchell, OmniQ).

⁷⁰² See Tr. at 14:14–20:12, Hearing Ex. 3-B at 7 (Apr. 11, 2018) (Mitchell, OmniQ); OmniQ Class 3 Initial at Exs. 2, 4; Tr. at 75:12–77:12 (Apr. 11, 2018) (Mitchell, OmniQ).

⁷⁰³ 2015 Recommendation at 123.

⁷⁰⁴ *Id.* (“In any event, the cases on which OmniQ seeks to rely for its assertions involve physical rather than digital copies of copyrighted works. The most closely analogous case appears instead to be *Capitol Records v. ReDigi*, which concluded that transferring digital files from one location to

2. Discussion

a. Works Protected by Copyright

The proposals in this class concern audiovisual works contained on DVDs and Blu-ray discs. There is no dispute that at least some of these works are protected by copyright.

b. Asserted Noninfringing Uses

Proponents allege three bases upon which the proposed uses would be noninfringing: (i) that allegedly “non-reproductive” uses would not implicate any rights protected by copyright under section 106; (ii) that the uses are private performances also protected by the first sale doctrine; and (iii) that the uses are fair use under section 107.

i. Non-Reproductive Use

OmniQ’s primary argument is that the use does not result in a reproduction of a copyrighted work under section 106(1) of the Copyright Act. Although OmniQ seemingly admits that its process creates a copy within the meaning of the Act,⁷⁰⁵ it contends that “[a]ny process that, once complete, has generated no more copies than when the process began, is not a reproduction.”⁷⁰⁶ OmniQ asserts that “[t]he reproduction right attaches to the work, not the copy” and “[w]hether the material object in which the work is fixed is substituted for another material object is inconsequential for purposes of the reproduction right.”⁷⁰⁷ In its view, “[a]lthough the term ‘reproduce’ is not defined in the [Copyright] Act, it is clear that Congress intended to follow the plain English meaning of the term, which is to say, to ‘reproduce’ is to ‘produce again’ or ‘produce another.’”⁷⁰⁸ OmniQ further alleges that the intermediate data segments in volatile memory created during its space-shifting process are not

another implicates the reproduction right and is therefore infringing, even where the original copy is contemporaneously or subsequently deleted.” (citations omitted)).

⁷⁰⁵ See 17 U.S.C. § 101 (defining “[c]opies” as “material objects . . . in which a work is fixed”); see also Tr. at 26:24–27:03 (Apr. 11, 2018) (Mitchell, OmniQ) (agreeing “that the destination [hard] drive . . . that the content is going to from the disc is a material object in which the work has been fixed”).

⁷⁰⁶ OmniQ Class 3 Initial at 24; see also OmniQ Class 3 Reply at 17 (“[E]ven if the OmniQ method met the fixation requirement after the original has been un-fixed, there is still only one fixation in existence, and therefore, no reproduction of the work into an additional copy.”); Tr. at 27:04–14 (Apr. 11, 2018) (Mitchell, OmniQ).

⁷⁰⁷ OmniQ Class 3 Initial at 26.

⁷⁰⁸ *Id.* at 29.

reproductions because they do not exist for a sufficiently long enough period of time to constitute fixed copies within the meaning of the Copyright Act.⁷⁰⁹

In support, OmniQ relies primarily on two cases—one applying Canadian law—that each found that there was no reproduction where a special process was applied to a printed image that enabled physical ink comprising the image to be peeled off of its original paper backing and then adhered to a new backing material (e.g., canvas or a ceramic plaque), like a decal.⁷¹⁰

OmniQ attempts to distinguish the technology at issue in *Capitol Records, LLC v. ReDigi Inc.*,⁷¹¹ which the Register relied upon in rejecting OmniQ’s proposal in the 2015 rulemaking.⁷¹² OmniQ appears to agree that ReDigi’s process created a reproduction, but asserts that its own technology is different because it deletes the original while it makes the new copy—as opposed to deleting it after the fact—such that two complete usable copies of the work never exist at the same time.⁷¹³

Opponents disagree, arguing that OmniQ’s technology would reproduce works because “[t]he copy resident on the new machine after OmniQ delivered it to a consumer would be physically distinct from the copy deleted from the disc,” i.e., “[i]t would constitute an entirely new thing, consisting of different electrons, that is capable of enabling

⁷⁰⁹ See *Id.* at Ex. 3 (“[T]he space-shifting process reads these chunks into volatile memory that is insufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration.”); Tr. at 24:02–11 (Apr. 11, 2018) (Mitchell, OmniQ) (“We definitely will stay within that window—that I guess it was *Cablevision*—of less than 1.2 seconds but certainly not minutes.”).

⁷¹⁰ See OmniQ Class 3 Initial at 24–26 (citing *Théberge v. Galerie d’Art du Petit Champlain inc.*, [2002] 2 S.C.R. 336 (Can.) and *C.M. Paula Co. v. Logan*, 355 F. Supp. 189 (N.D. Tex. 1973)). OmniQ also cites *Lee v. Deck The Walls, Inc.*, 925 F. Supp. 576 (N.D. Ill. 1996), *aff’d sub nom. Lee v. A.R.T. Co.*, 125 F.3d 580 (7th Cir. 1997), which found that purchasing notecards and remounting them onto ceramic tiles and reselling them did not infringe the derivative work or distribution rights of the works embodied in the notecards.

⁷¹¹ 934 F. Supp. 2d 640 (S.D.N.Y. 2013) (finding that because the unauthorized transfer and sale of digital music files on the internet was a reproduction under the Copyright Act, even where the original copy was deleted, neither fair use nor the first sale doctrine applied), *appeal docketed*, No. 16-2321 (2d Cir. July 1, 2016).

⁷¹² See 2015 Recommendation at 123.

⁷¹³ See OmniQ Class 3 Initial at 26; Tr. at 30:07–31:08 (Apr. 11, 2018) (Mitchell, OmniQ) (stating “the fundamental difference here is that we don’t take that interim step of making a copy and then deleting it,” that is, ReDigi is “reproduc[ing] and delet[ing]” whereas OmniQ is “reproduc[ing] while delet[ing]”) (emphases added).

perception of the same work (*i.e.*, a copy).⁷¹⁴ Opponents contend that OmniQ’s technology is “distinguishable from transferring physical copies of images onto new objects,”⁷¹⁵ arguing that the case cited by OmniQ “involved very different technology from a different era.”⁷¹⁶ Opponents also disagree with OmniQ’s characterization of *ReDigi*, explaining that “[t]he [court’s] reasoning really turned on whether the copy in the end user’s home is a new copy that is resident in a new material object and whether that violates the reproduction right without regard to what you do with the original copy, whether you delete it instantaneously while you’re copying it, before or after.”⁷¹⁷

Having considered the relevant comments and testimony, the Acting Register finds that under current law, OmniQ’s self-described process is likely to be an unauthorized reproduction in violation of section 106(1). As in 2015, the most relevant case interpreting the reproduction right in this context still appears to be *ReDigi*. In the 2015 rulemaking, the Register rejected OmniQ’s claims, explaining that the *ReDigi* court “concluded that transferring digital files from one location to another implicates the reproduction right and is therefore infringing, even where the original copy is contemporaneously or subsequently deleted.”⁷¹⁸

The Acting Register finds no basis to depart from the determination made in the 2015 proceeding. Section 106(1) of the Copyright Act provides for the exclusive right of copyright owners “to reproduce the copyrighted work in copies.”⁷¹⁹ “Copies” are defined as “material objects, other than phonorecords, in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.”⁷²⁰ Under section 101, “[a] work is ‘fixed’ in a tangible medium of expression when its embodiment in a copy . . . is sufficiently permanent”⁷²¹ The legislative history of the Copyright Act further explains:

⁷¹⁴ Joint Creators II Class 3 Opp’n at 14; *see* Tr. at 28:21–29:07 (Apr. 11, 2018) (Williams, Joint Creators II).

⁷¹⁵ Joint Creators II Class 3 Opp’n at 13–14.

⁷¹⁶ DVD CCA & AACS LA Class 3 Opp’n at 4.

⁷¹⁷ Tr. at 31:10–32:16 (Apr. 11, 2018) (Williams, Joint Creators II); *see* Joint Creators II Class 3 Opp’n at 13–14.

⁷¹⁸ *See* 2015 Recommendation at 123 (citing *ReDigi*, 934 F. Supp. 2d at 650 (“It is beside the point that the original phonorecord no longer exists. It matters only that a new phonorecord has been created.”)).

⁷¹⁹ 17 U.S.C. § 106(1).

⁷²⁰ *Id.* § 101.

⁷²¹ *Id.*

Read together with the relevant definitions in section 101, the right “to reproduce the copyrighted work in copies or phonorecords” means the right to produce a material object in which the work is duplicated, transcribed, imitated [*sic*], or simulated in a fixed form from which it can be “perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.”⁷²²

From this, the *ReDigi* court found that “the plain text of the Copyright Act makes clear that reproduction occurs when a copyrighted work is fixed in a new *material object*,” and that the legislative history “bolsters this reading.”⁷²³ The court held that to “reproduce” a work simply means to make a “copy” of it within the meaning of section 101.⁷²⁴ The court further held that even where a new copy replaces the original (either contemporaneously or subsequently), an infringement of the reproduction right has occurred; there is no additional requirement that a copy must increase the total number of copies available for use for that copy to be a reproduction.⁷²⁵

Thus, it appears OmniQ’s process would likely result in an unauthorized reproduction because its method creates a new copy of the work.⁷²⁶ Indeed, as the Register previously stated, “a digital file transfer creates a new copy or phonorecord on the transferee’s computer.”⁷²⁷ To paraphrase the *ReDigi* court, “the fact that a file has moved from one material object—the [DVD or Blu-ray disc]—to another—the [OmniQ] server—means that a reproduction has occurred.”⁷²⁸ It matters not that the original copy is destroyed.⁷²⁹

⁷²² H.R. REP. NO. 94-1476, at 61, *reprinted in* 1976 U.S.C.C.A.N. 5659, 5675; S. REP. NO. 94-473, at 58 (1975).

⁷²³ *ReDigi*, 934 F. Supp. 2d at 648–49.

⁷²⁴ Considering a dictionary definition of “reproduction,” the court also noted “[s]ignificantly, it is not defined as ‘to produce again while the original exists.’” *Id.* at 650.

⁷²⁵ *See id.* at 650 (“[I]t is the creation of a *new* material object and not an *additional* material object that defines the reproduction right.”).

⁷²⁶ *See, e.g.*, Tr. at 26:24–27:03 (Apr. 11, 2018) (Mitchell, OmniQ).

⁷²⁷ U.S. COPYRIGHT OFFICE, THE MAKING AVAILABLE RIGHT IN THE UNITED STATES 22 n.94 (2016) (“Making Available Report”); U.S. COPYRIGHT OFFICE, DMCA SECTION 104 REPORT 79 & n.272 (2001) (“Section 104 Report”) (“The ultimate product of one of these digital transmissions is a new copy in the possession of a new person. . . . [T]he recipient obtains a new copy, not the same one with which the sender began.”); *see also ReDigi*, 934 F. Supp. 2d at 649 (“[As] confirmed by the laws of physics[, i]t is simply impossible that the same ‘material object’ can be transferred over the Internet.”).

⁷²⁸ *ReDigi*, 934 F. Supp. 2d at 650.

⁷²⁹ *See id.*

OmniQ's reliance upon physical ink cases is inapposite. Besides the fact that one is a Canadian case, the other was decided under the 1909 Copyright Act, and neither case concerns the digital world, the cases do not support OmniQ's contention that "where the owner of a lawfully made copy transfers the fixation of a work from one material object to another, without altering the work or causing more copies to be created, there is no infringement of the exclusive right to reproduce the work into copies."⁷³⁰ In both of these cases, the work was originally fixed in ink that was then removed from one backing and adhered to another.⁷³¹ While there was substitution of the backing, there was no substitution of the material object in which the work was fixed (*i.e.*, the ink).⁷³² This is markedly different from the digital realm where transferring a work requires fixing it in a new material object—*i.e.*, making a new copy.⁷³³ In any event, *ReDigi* is the more analogous and persuasive precedent.

ii. Private Performance and First Sale Doctrine

In further support of its exemption proposal, OmniQ points to the importance and public benefits of preserving private performances⁷³⁴ and the ability to freely alienate copies of works pursuant to the first sale doctrine under section 109 of the Copyright Act.⁷³⁵ As OmniQ appears to premise consideration of these policy arguments on its technology making no reproduction,⁷³⁶ this is unpersuasive. With regard to private performances, the Register has repeatedly determined that "space-shifting for noninfringing private performance is insufficient grounds for an exemption if the space-shifting also requires a reproduction."⁷³⁷ The Copyright Office has similarly concluded

⁷³⁰ See OmniQ Class 3 Initial at 27.

⁷³¹ See *ReDigi*, 934 F. Supp. 2d at 650–51 (discussing facts at issue in *C.M. Paula Co. v. Logan*).

⁷³² See *C.M. Paula Co.*, 355 F. Supp. at 191 n.4 ("The rationale upon which the Court's holding is based makes it immaterial whether the paper backing is peeled away or not, since either process uses the original print."); *Théberge*, [2002] 2 S.C.R. at 358 ("[W]e are talking here about moving the same physical layer of inks around different blank substrates.").

⁷³³ See Making Available Report at 22 n.94; Section 104 Report at 79 & n.272.

⁷³⁴ See OmniQ Class 3 Initial at 5, 21, 35.

⁷³⁵ See *id.* at 8–9 ("If we do not allow a comparable manifestation of the principles underlying the first sale doctrine to evolve alongside the technological evolution, we risk losing the important benefits of the doctrine."); see also *id.* at 5–13, 22–23, 31, 39–44; OmniQ Class 3 Reply at 10–16. But despite devoting considerable time to discussing the first sale doctrine, OmniQ confusingly states that its petition "has nothing to do directly with the first sale doctrine." See OmniQ Class 3 Initial at 9.

⁷³⁶ See, *e.g.*, OmniQ Class 3 Initial at 5, 21.

⁷³⁷ See 2015 Recommendation at 123–24 n. 773 (citing 2006 Recommendation at 70).

that the first sale doctrine does not apply to digital transfers of copies of works.⁷³⁸ In any event, it is only a defense to an infringement of the distribution right under section 106(3), not the reproduction right under section 106(1).⁷³⁹

iii. Fair Use

Proponents offer little argument in support of their space-shifting activities being fair use. There were no substantive comments submitted squarely in support of the personal space-shifting exemption sought by the De Pretis petition, although Consumers Union and FSF voiced generic support for the exemption. In fact, OmniQ's initial comment identifies reliance upon the fair use doctrine as a "fundamental weakness" of the De Pretis petition, preferring instead to emphasize its assertion, addressed above, that its own technology avoids making reproductions.⁷⁴⁰ But OmniQ does appear to contend in the alternative that its business model would constitute fair use. While admitting its technology is not "transformative," it asserts that under the fourth factor, "there is no 'market for providing access' that is cognizable" and that "the 'unfettered personal copying' that might have occurred in the case of 'unfettered' backup or convenience 'personal use' copies is not present here."⁷⁴¹ Similarly, SolaByte asserts that its proposed commercial technology would permit "the consumer [to] exercise their fair use rights."⁷⁴² While SolaByte did not analyze each of the fair use factors, it claimed that "[t]he consequences . . . from a fair use perspective [are] low" because "we keep the content in a secure form" and thus "reduce the consequence or the risk of piracy."⁷⁴³

⁷³⁸ See Section 104 Report at 78–80 ("We therefore conclude that section 109 does not apply to digital transmission of works."); see also Making Available Report at 22 n.94 (reaffirming that there is no digital first sale doctrine); DEP'T OF COMMERCE INTERNET POLICY TASK FORCE, WHITE PAPER ON REMIXES, FIRST SALE, AND STATUTORY DAMAGES 4 (2016) ("Amending the law to extend the first sale doctrine to digital transmissions of copyrighted works is not advisable at this time."); *ReDigi*, 934 F. Supp. 2d at 655 (finding that the first sale doctrine does not apply to digital transfers because "the statute protects only distribution by 'the owner of a particular copy or phonorecord . . . of that copy or phonorecord,'" and in the digital context, it is "impossible for the user to sell her 'particular' phonorecord") (omission in original) (quoting 17 U.S.C. § 109(a)).

⁷³⁹ 17 U.S.C. § 109(a); see also *ReDigi*, 934 F. Supp. 2d at 655; Section 104 Report at 80 ("[W]hen the owner of a lawful copy of a copyrighted work digitally transmits that work in a way that exercises the reproduction right without authorization, section 109 does not provide a defense to infringement.").

⁷⁴⁰ OmniQ Class 3 Initial at 4 ("In the absence of any reproduction, there is no need to apply fair use analysis to justify it.").

⁷⁴¹ OmniQ Class 3 Reply at 20.

⁷⁴² Tr. at 45:22–46:01 (Apr. 11, 2018) (Chatfield, SolaByte).

⁷⁴³ Tr. at 46:02–08 (Apr. 11, 2018) (Chatfield, SolaByte).

In opposition, Joint Creators II contend that recent case law developments demonstrate that it is “not only the case that it is *unlikely* that space-shifting is a fair use—it is clear that space-shifting *is not* a fair use.”⁷⁴⁴ Joint Creators II also claim that analyzing the section 107 factors demonstrates that space-shifting is unlikely to be fair use.⁷⁴⁵ They disagree that having a single encrypted copy at the end of a space-shifting process meaningfully alters the analysis.⁷⁴⁶

In 2015, the Register recognized the consumer and policy appeal of the proposed exemptions, as consumers who purchase a movie in one format can experience frustration when they are unable to watch that film in a different format on another device.⁷⁴⁷ She noted, however, that “the section 1201 rulemaking is a carefully tailored proceeding that is designed to incorporate, not replace, the determinations of Congress and the courts.”⁷⁴⁸ After careful review, the Register did “not find any fair use precedent that sanctions broad space-shifting or format shifting.”⁷⁴⁹ Since then, the Ninth Circuit, in *Disney Enterprises, Inc. v. VidAngel, Inc.*, rejected the contention that space-shifting is a “paradigmatic example of fair use,” noting that “[t]he reported decisions unanimously reject the view that space-shifting is fair use under § 107.”⁷⁵⁰ In doing so, the court credited the Register’s conclusion in the last rulemaking that “the law of fair use, as it stands today, does not sanction broad-based space-shifting or format-shifting.”⁷⁵¹ The court ultimately concluded more narrowly that “even assuming space-shifting could be fair use, [the defendant’s] service is not personal and non-commercial space-shifting.”⁷⁵²

With regard to personal space-shifting, in light of the lack of record and in the absence of clear supporting precedent, the Acting Register finds no basis to depart from the fair use

⁷⁴⁴ Joint Creators II Class 3 Opp’n at 3, 17 (citing *Disney Enters., Inc. v. VidAngel, Inc.*, 869 F.3d 848, 862 (9th Cir. 2017)); Tr. at 61:01–05 (Apr. 11, 2018) (Williams, Joint Creators II).

⁷⁴⁵ Joint Creators II Class 3 Opp’n at 18–19 (asserting that all of the factors weigh against fair use).

⁷⁴⁶ Tr. at 68:19–70:10 (Apr. 11, 2018) (Williams, Joint Creators II).

⁷⁴⁷ 2015 Recommendation at 119.

⁷⁴⁸ *Id.* at 120.

⁷⁴⁹ *Id.*

⁷⁵⁰ *VidAngel*, 869 F.3d at 862 (citing *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1019 (9th Cir. 2001) and *UMG Recordings, Inc. v. MP3.com, Inc.*, 92 F. Supp. 2d 349, 351 (S.D.N.Y. 2000). Notably, the court considered, but did not credit, *Recording Indus. Ass’n of Am. v. Diamond Multimedia Sys., Inc.*, 180 F.3d 1072, 1079 (9th Cir. 1999), as supporting the contention that space-shifting is fair use. *See id.*

⁷⁵¹ *VidAngel*, 869 F.3d at 862 (quoting 2015 Final Rule at 65,960).

⁷⁵² *See id.*

analysis and ultimate conclusion reached in the 2015 proceeding, where “the Register [was] unable to determine that the proposed uses [were] noninfringing.”⁷⁵³

As to OmniQ and SolaByte, the commercial nature and potential market effects of their business models complicate the fair use analysis, and not in their favor.

Specifically, the first factor does not favor them, as they seek to reproduce, or enable others to reproduce, audiovisual works for the same entertainment purposes as originally intended;⁷⁵⁴ OmniQ itself admits that its uses are not transformative.⁷⁵⁵ Moreover, it is undisputed that both OmniQ and SolaByte are commercial enterprises.⁷⁵⁶ Indeed, OmniQ intends “to build the world’s biggest video store.”⁷⁵⁷ The second and third factors heavily disfavor fair use, as the proposals would encompass motion pictures and television programs that are likely to be highly creative in nature and at the core of copyright’s protective purpose,⁷⁵⁸ and because the proposals are predicated on a desire to reproduce entire copyrighted works.⁷⁵⁹

With regard to the fourth factor, the record suggests that OmniQ’s and SolaByte’s businesses may negatively impact the market for or value of copyrighted works. Joint Creators II provide substantial evidence of extensive markets for internet-based distribution services for copyrighted audiovisual works, including digital rentals (*e.g.*, iTunes, GooglePlay, Amazon Video, Vudu), online streaming and over-the-top services (*e.g.*, Hulu, Netflix, Amazon Video), and on-demand cable and satellite television offerings (*e.g.*, Comcast, Verizon Fios, AT&T U-verse, DIRECTV, DISH Network).⁷⁶⁰ Joint Creators II also highlight disc-to-digital services, like Vudu, and digital locker services, like Movies Anywhere and Ultraviolet, that allow users to access content initially

⁷⁵³ See 2015 Recommendation at 122–24; *see also* 2012 Recommendation at 162–65.

⁷⁵⁴ See 2015 Recommendation at 122; 2012 Recommendation at 164.

⁷⁵⁵ See OmniQ Class 3 Reply at 20 (“[I]t is true that the non-reproductive space-shifting is not transformative of the work . . .”) (internal quotation marks omitted).

⁷⁵⁶ Tr. at 75:12–77:12 (Apr. 11, 2018) (Mitchell, OmniQ); Tr. 45:14–21 (Apr. 11, 2018) (Chatfield, SolaByte).

⁷⁵⁷ OmniQ Class 3 Initial at Ex. 4. While OmniQ’s comments suggest that it might permit others to use its technology in different ways at some point in the future, these contentions are speculative and do not change the purpose of the commercial uses OmniQ itself seeks to make and for which it is asking an exemption, which is primarily to create a content library for its online video store.

⁷⁵⁸ See 2015 Recommendation at 122–23; 2012 Recommendation at 164.

⁷⁵⁹ See 2015 Recommendation at 123; 2012 Recommendation at 165.

⁷⁶⁰ Joint Creators II Class 3 Opp’n at 3–11; *see also* Tr. at 163:11–164:04, 167:24–168:06 (Apr. 25, 2018) (Gilford, Movies Anywhere).

purchased in a disc medium through an online platform (or across online platforms).⁷⁶¹ Finally, they introduce evidence that DVDs and Blu-ray discs bundled in “bonus packs,” which include access to a separate online or downloadable copy, are sold at a higher price point than is charged for just the disc by itself.⁷⁶² Opponents assert that the proposed exemption, which could permit “unfettered personal copying” as well as commercial competitors to these services, will harm these distribution models.⁷⁶³

Proponents’ arguments to the contrary are not persuasive. They contend that their space-shifting would produce a single, encrypted copy of the work and, in OmniQ’s case, that only one customer could watch that copy at a time.⁷⁶⁴ OmniQ further argues that its space-shifting can “restore the benefits” of the first sale doctrine, but the Copyright Office has previously concluded that the first sale doctrine should not apply to digital transfers.⁷⁶⁵ In light of proponents’ avowed intent to substitute their own non-transformative, commercial services for the many preexisting licensed models identified by opponents—including but not only by serving as “the world’s largest video rental store”—the Acting Register concludes that the fourth factor disfavors proponents.⁷⁶⁶

In balancing the section 107 factors, Acting Register finds that the non-transformative, commercial uses proposed by OmniQ and SolaByte are disfavored.⁷⁶⁷ Further, while the law may one day clarify whether certain space-shifting uses, such as those of a purely personal and noncommercial nature, are fair use, the record as submitted does not support that conclusion currently. In sum, based on the relevant record, the Acting

⁷⁶¹ Joint Creators II Class 3 Opp’n at 7–9; Tr. at 162:04–180:13, Hearing Ex. 3-C (Apr. 25, 2018) (Gilford, Movies Anywhere).

⁷⁶² Joint Creators II Class 3 Opp’n at 6.

⁷⁶³ *Id.* at 19.

⁷⁶⁴ See OmniQ Class 3 Reply at 20; Tr. at 45:22–46:08 (Apr. 11, 2018) (Chatfield, SolaByte).

⁷⁶⁵ See OmniQ Class 3 Initial at 31; Section 104 Report at 80–101.

⁷⁶⁶ See *TVEyes*, 883 F.3d at 180 (“Since the ability to re-distribute Fox’s content in the manner that TVEyes does is clearly of value to TVEyes, it (or a similar service) should be willing to pay Fox for the right to offer the content. By providing Fox’s content to TVEyes clients *without* payment to Fox, TVEyes is in effect depriving Fox of licensing revenues from TVEyes or from similar entities”); cf. *MP3.com*, 92 F. Supp. 2d at 352 (“Any allegedly positive impact of defendant’s activities on plaintiffs’ prior market in no way frees defendant to usurp a further market that directly derives from reproduction of the plaintiffs’ copyrighted works.”).

⁷⁶⁷ In fact, SolaByte’s business model, at least as presented in this proceeding, appears similar to one that was found to not qualify as fair use. See *MP3.com*, 92 F. Supp. 2d at 350–53 (finding no fair use where a service created unauthorized copies of sound recordings from CDs on its computer servers and then permitted subscribers to listen to those copies over the internet after the service authenticated that the subscriber already owned a CD copy of the particular sound recording).

Register does not conclude that proponents' space-shifting activities are likely noninfringing under current law.

c. Causation

As discussed above, the Acting Register cannot conclude that the proposed uses are likely noninfringing and, as discussed below, the record does not support a finding of any cognizable adverse effects due to the prohibition on circumvention. As a result, she cannot conclude that proponents' inability to engage in their proposed uses are "clearly attributable to implementation of a technological protection measure."⁷⁶⁸ Specifically as to OmniQ's contention that the availability of works on the secondary market (*e.g.*, for resale, rental, lending, or gifting) is being diminished by a shift from ownership of copies to a "permissions-based," "access economy," assuming this is the case, the record is insufficient to establish that section 1201 is the cause of any such purported harm.⁷⁶⁹ Instead, the record may suggest that any contraction of the secondary market is the result of an increasing consumer preference for online access over physical media.⁷⁷⁰

d. Asserted Adverse Effects

Even if the Acting Register could conclude that the proposed uses are likely noninfringing, there is not a sufficient record of cognizable adverse effects resulting from section 1201 to warrant granting an exemption.

Under the first statutory factor, proponents argue that the overall availability of works for public use is shrinking because the hardware and software needed to play disc media are becoming less available in the marketplace.⁷⁷¹ They argue that online content distribution platforms, taken in the aggregate, only offer a small and always-changing fraction of the titles historically available on DVD and Blu-ray disc, and that the costs of these services are unacceptable, especially where users already own the content in disc form.⁷⁷²

Opponents, as discussed above, provide evidence of alternatives to circumvention in the form of a substantial number of online distribution platforms for accessing copyrighted

⁷⁶⁸ 2015 Recommendation at 16 (quoting Commerce Comm. Report at 37); *see* House Manager's Report at 6.

⁷⁶⁹ *See* OmniQ Class 3 Reply at 11; *see also* OmniQ Class 3 Initial at 1–2, 5–13.

⁷⁷⁰ *See* Joint Creators II Class 3 Opp'n at 2–11.

⁷⁷¹ *See* OmniQ Class 3 Initial at 39, 42–44; Tr. at 83:04–13 (Apr. 11, 2018) (Chatfield, SolaByte); Tr. at 8:08–14:08, Hearing Ex. 3-A at 10 (Apr. 11, 2018) (Chatfield, SolaByte).

⁷⁷² *See* OmniQ Class 3 Initial at 32–33, 39, Ex. 4; OmniQ Class 3 Reply at 10–15; Tr. 81:06–82:22 (Apr. 11, 2018) (Chatfield, SolaByte); Tr. at 8:08–14:08, Hearing Ex. 3-A at 9 (Apr. 11, 2018) (Chatfield, SolaByte).

audiovisual works, the vast majority of which they claim exist as viable business models only because of the ability to employ TPMs to protect the content from unauthorized uses.⁷⁷³ Joint Creators II disagree that movies are less available than before the rise of digital distribution, or that proponents have established that there is actually any content that can only be accessed on DVDs or Blu-ray discs.⁷⁷⁴ They relatedly assert that disc media remains readily accessible through available peripheral devices.⁷⁷⁵ Joint Creators II contend that the licensed online distribution platforms not only provide many of the benefits of the first sale doctrine, but also offer additional benefits, such as “portability, cross-platform compatibility, the ability to share multiple copies with family or friends, the availability of cloud storage, and the ability to re-download copies of purchased titles in the event of loss or even for convenience of storage.”⁷⁷⁶ Joint Creators II argue that space-shifting would directly compete with these existing online distribution models, decreasing revenue from lawful sales of digital content and ultimately threatening the viability of creative output made available commercially.⁷⁷⁷

Based on the record, the Acting Register does not find that section 1201 is negatively impacting the availability for use of copyrighted works. First, the record does not indicate that hardware and software to play DVDs and Blu-ray discs are no longer reasonably available on the market. Second, the record suggests that the services cited by Joint Creators II are reasonable alternatives to circumvention. While some services individually may have fewer titles than what is available on disc media, the record does not support a finding that all of these services do. OmniQ seems to suggest that about 30,000 titles would be reasonable, as that is the number of titles it says one of the largest video stores used to carry.⁷⁷⁸ But at least one of the services listed by Joint Creators II, Vudu, appears to have over 100,000 titles available for purchase or rental.⁷⁷⁹ With regard to the potential cost to consumers to repurchase content originally procured on disc media, as the Register explained in the 2015 proceeding, “the 1201 exemption process is meant to ensure that users have access to copyrighted works; it is not meant to

⁷⁷³ See DVD CCA & AACCS LA Class 3 Opp’n at 3; Joint Creators II Class 3 Opp’n at 2–11, 19–20.

⁷⁷⁴ See Joint Creators II Class 3 Opp’n at 11–12, 20.

⁷⁷⁵ See *id.* at 20–21.

⁷⁷⁶ *Id.* at 25.

⁷⁷⁷ See *id.* at 4–6, 21–22 (warning that in such a case, “copyright owners would be less likely to make available lower priced options that limit the number of copies a consumer might make, or which restrict platforms through which a work could be accessed”); see also Tr. at 67:10–68:16 (Apr. 11, 2018) (Williams, Joint Creators II) (“[I]t’s quite possible that prices would go up in the first instance and a lot of these lower-priced offerings wouldn’t be available.”).

⁷⁷⁸ See OmniQ Class 3 Initial, Ex. 4; Tr. at 75:24–76:06 (Apr. 11, 2018) (Mitchell, OmniQ).

⁷⁷⁹ See *About Us*, VUDU, <https://www.vudu.com/content/movies/aboutus> (last visited Sept. 27, 2018).

guarantee consumers the ability to access content through their preferred method or format.”⁷⁸⁰ Certainly, this conclusion applies with at least equal force to SolaByte’s desire to avoid securing licenses from copyright owners to build its commercial streaming library and compete with an array of licensed platforms offering the same content.⁷⁸¹ Further, Joint Creators II’s assertions that discs bundled with digital access usually are priced at a premium⁷⁸² suggest that “consumers purchasing DVDs and Blu-ray discs [without such features] are not necessarily harmed in economic terms.”⁷⁸³

Regarding the second and third factors, proponents offer few arguments, with OmniQ essentially providing examples of a teacher and a film critic seeking to use motion pictures in their work.⁷⁸⁴ OmniQ, however, seems to admit that the works could be accessed by alternative means, such as “subscribing to a new monthly subscription service,” “purchas[ing] a copy,” or borrowing it from an “inconvenient” source, such as a library.⁷⁸⁵ The mere inconvenience of obtaining alternative access is generally not an adverse effect.⁷⁸⁶

Turning to the effect of circumvention on the market for or value of copyrighted works, OmniQ argues that its so-called “non-reproductive” space-shifting would have a positive effect, because it would expand the secondary market for copies of the work.⁷⁸⁷ Joint Creators II, on the other hand, assert that the uses would have a negative impact because “space-shifting not only results in the generation of in-the-clear . . . copies that can be disseminated widely, but also directly competes with authorized offerings.”⁷⁸⁸ The Acting Register concludes that this factor disfavors the exemption. OmniQ’s claims about the secondary market are speculative, and as discussed above, the market currently offers consumers myriad online distribution models for accessing copyrighted works.

⁷⁸⁰ 2015 Recommendation at 124 (citing 2012 Recommendation at 163).

⁷⁸¹ See Tr. at 44:13–45:13 (Apr. 11, 2018) (Chatfield, SolaByte).

⁷⁸² See Joint Creators II Class 3 Opp’n at 6, 21–22.

⁷⁸³ 2015 Recommendation at 124.

⁷⁸⁴ See OmniQ Class 3 Initial at 34–36.

⁷⁸⁵ See *id.* at 34.

⁷⁸⁶ House Manager’s Report at 6; see Section 1201 Report at 121 (“[W]hether or not something is an adverse effect or a mere inconvenience can depend upon the costs and burdens involved in making use of reasonable alternatives.”).

⁷⁸⁷ See OmniQ Class 3 Initial at 36.

⁷⁸⁸ Joint Creators II Class 3 Opp’n at 23 (“OmniQ’s business model would lower the value of works because copyright owners who sell access to copies in one format at a particular price point would be deprived of the ability to sell access to that work in other formats, or to charge higher prices for bundled access to works in multiple formats.”).

The Acting Register does not find any of proponents' other arguments persuasive. Accordingly, on the present record, the Acting Register cannot find that the inability to engage in the proposed activities is adversely affecting, or in the next three years is likely to adversely affect, the ability to make noninfringing uses of copyrighted works.

3. NTIA Comments

Unlike in prior rulemakings, where NTIA "supported limited versions of a noncommercial space-shifting exemption . . . mainly in the interest of consumer protection,"⁷⁸⁹ NTIA agrees with the Acting Register that an exemption for this class is not warranted in the present rulemaking.⁷⁹⁰ NTIA acknowledges that the "legal status of the concept of space-shifting remains a matter of dispute among copyright experts" and that it "has not been explicitly established as non-infringing on the basis of the fair use doctrine."⁷⁹¹ Examining the four fair use factors, NTIA concludes that the "fair use analysis generally weighs against granting the proposed exemptions."⁷⁹² NTIA finds the first factor to weigh in favor of De Pretis's personal use but against OmniQ's commercial and non-transformative proposal; it finds the second factor to weigh against both; it finds the third factor to either weigh against or be neutral as to both; and it finds the fourth factor to weigh against fair use.⁷⁹³

NTIA adds that "although [it] is sympathetic to the challenges encountered by those who own copies of motion pictures in formats no longer compatible with modern devices" and "[a]lthough noncommercial space-shifting might be a non-infringing use, the proponents have not established in this proceeding that their specific proposal would be non-infringing."⁷⁹⁴ Moreover, NTIA recognizes that "[p]roponents failed to demonstrate that the 'prevalence of [encrypted digital content] is diminishing the ability of individuals to use these works in ways that are otherwise lawful.'"⁷⁹⁵

4. Conclusion and Recommendation

Based on the record presented during the proceeding, the Acting Register cannot conclude that the space-shifting activities advocated by proponents (and largely for commercial purposes) are noninfringing, or that the prohibition on circumvention has, or is likely to have, an adverse impact on noninfringing uses of the underlying

⁷⁸⁹ NTIA Letter at 37 n.184.

⁷⁹⁰ *Id.* at 37–38.

⁷⁹¹ *Id.* at 37 & n.185.

⁷⁹² *Id.* at 37.

⁷⁹³ *Id.* at 37–38.

⁷⁹⁴ *Id.*

⁷⁹⁵ *Id.* at 38 (quoting 2015 Recommendation at 15 (quoting Commerce Comm. Report at 37)).

audiovisual works. The Acting Register therefore declines to recommend granting an exemption for this class.

D. Proposed Class 4: Audiovisual Works—HDCP/HDMI

1. Background

a. Summary of Proposed Exemption

Proposed Class 4 concerns a petition from Andrew “bunnie” Huang (represented by EFF) for an exemption “to make noninfringing uses of audiovisual works that are subjected to High-bandwidth Digital Content Protection (HDCP).”⁷⁹⁶ Huang describes HDCP as “a protocol used to restrict content sent over High-Definition Multimedia Interface (HDMI) cables,”⁷⁹⁷ or “a standard for video transport from one device to another.”⁷⁹⁸ He explains that “[m]any devices that play video discs and video game software encode their output using HDCP” and that “[t]his interferes with capturing the output for subsequent noninfringing uses, such as fair use or automated analysis of noncopyrightable elements of the content.”⁷⁹⁹ Huang seeks an exemption for the “[f]ull [r]ange of [n]oninfringing [u]ses of HDCP-[e]ncumbered [w]orks,” “not an exemption that identifies a tiny sliver of noninfringing uses while leaving the rest prohibited.”⁸⁰⁰ His petition notes that the “types of users who want access are, in the first instance, Petitioner bunnie Huang, as well as a range of individuals including scholars, remixers, video game enthusiasts, and businesses who use digital video playback devices.”⁸⁰¹

In addition to Huang, FSF filed comments generally supporting this exemption.⁸⁰² Class 4 was opposed by Joint Creators II, Digital Content Protection, L.L.C. (“DCP”), Entertainment Software Association (“ESA”) and DVD CCA and AACIS LA.⁸⁰³

⁷⁹⁶ Huang Class 4 Pet. at 2.

⁷⁹⁷ *Id.*

⁷⁹⁸ Huang Class 4 Initial at 1.

⁷⁹⁹ Huang Class 4 Pet. at 2.

⁸⁰⁰ Huang Class 4 Reply at 4; *see also* Huang Class 4 Initial at 5; Tr. at 173:20–21 (Apr. 24, 2018) (Walsh, EFF).

⁸⁰¹ Huang Class 4 Pet. at 3.

⁸⁰² During the public hearing, the Copyright Office heard from two additional individuals supporting the exemption. *See* Tr. at 209:07–11 (Apr. 25, 2018) (Wiens, iFixit). In particular, one stated that he has run into problems with HDCP when making video recordings for conferences and public meetings, where laptop monitor outputs sometimes “default to having HDCP.” Tr. at 209:23–214:06 (Apr. 25, 2018) (Freeman, SaurikIT). Without a further factual record, the Acting Register is unable to appropriately evaluate this concern. For example, it is not clear whether

b. Overview of Issues

In their comments, opponents provide additional detail about HDCP. As described by Joint Creators II:

HDCP technologies protect high-value digital transmissions of motion pictures, television programs, video games, and audio against unauthorized interception and copying while a digital set-top box, disc player, video game console, or digital video recorder delivers the content to a television or computer for viewing. . . . The system is also designed to prevent HDCP-encrypted content from being played on unauthorized devices that expose works to copying, unauthorized viewing or listening, and redistribution. The technology enables a service provider to identify whether a particular receiver is authorized to receive the content before transmitting encrypted copyrighted works. If the receiver is an authorized device, the transmitter provides the content, but encrypts it to prevent interception. HDCP is recognized as the industry standard by content providers and device manufacturers.⁸⁰⁴

DCP—which licenses HDCP—elaborates:

When a user instructs the Source Device to play content protected by . . . a storage or streaming TPM, the Source Device decrypts and decompresses the content in preparation to transmitting it to another device. That Device is often a display, such as a high-definition TV (the Sink). If the source TPM requires link protection, HDCP authenticates the Sink. Then HDCP encrypts only small portions of the decrypted-decompressed content at a time when that portion is prepared for transmission across an HDMI connection to the Sink (an HDTV). The Sink then decrypts each portion when received. If it has the capability, the Sink can manipulate the content, e.g., provide picture-in-picture, overlay with different content, etc. . . . HDCP is agnostic as to the content.⁸⁰⁵

HDCP is active when the output is being transmitted with the authority of the copyright owner (e.g., the presenter who created it).

⁸⁰³ DCP is a wholly owned subsidiary of Intel Corporation, which developed HDCP. DCP Class 4 Opp'n at 3 & n.6.

⁸⁰⁴ Joint Creators II Class 4 Opp'n at 5; *see also* ESA Class 4 Opp'n at 2, 4.

⁸⁰⁵ DCP Class 4 Opp'n at 3 (citation omitted); *see also* DVD CCA & AACS LA Class 4 Opp'n at 3 (“[I]n the United States all High Definition and Ultra High Definition digital televisions have inputs for HDMI transmissions.”).

Huang says that the “master key” for HDCP was uploaded to the internet in 2010,⁸⁰⁶ but participants disagreed whether the current version of HDCP has been cracked.⁸⁰⁷

Although the Copyright Office has not previously considered the precise issues presented here, Huang is a plaintiff in ongoing litigation against the Library of Congress and the Copyright Office concerning section 1201. In that judicial proceeding, Huang—who resides in Singapore—alleges that he is “the inventor of the ‘NeTV’ devices for editing high-definition digital video streams,” which has “a limited ability to superimpose pixels onto an HDMI stream, but its functionality is dramatically restricted because it is designed not to circumvent HDCP.”⁸⁰⁸ Huang appears to be developing a “NeTV2” which he says will be capable of adding “opaque text overlay” to live encrypted video streams “without ever decrypting the video stream,” and on unencrypted video feeds, will provide “full access to the entire video stream” to let users “arbitrarily manipulate pixels in real time.”⁸⁰⁹

According to his complaint, Huang, through his company Alphamax, LLC, also seeks to develop and commercially distribute a device called a “NeTVCR,” which would circumvent HDCP to, among other things, “save content for later viewing, move content to a viewing device of the user’s choice, or convert content to a more useful format.”⁸¹⁰ Huang’s written comments do not mention Alphamax, though his counsel stated that the NeTVCR does not yet exist,⁸¹¹ and when asked, consistently represented that the proposal only pertains to the personal uses of individuals.⁸¹² This makes sense given

⁸⁰⁶ Huang Class 4 Initial at 2.

⁸⁰⁷ See Tr. at 174:16–175:18 (Apr. 24, 2018) (Walsh, EFF; Burger, DCP; Taylor, DVD CCA & AACSLA).

⁸⁰⁸ Complaint for Declaratory & Injunctive Relief ¶¶ 6, 89, 98, *Green v. U.S. Dep’t of Justice*, No. 1:16-cv-01492-EGS (D.D.C. July 21, 2016); see also Tr. at 159:14–160:05, 170:19–171:05 (Apr. 24, 2018) (Walsh, EFF) (stating that “because it doesn’t circumvent, it can’t achieve any of the uses that we’re talking about here,” such as creating transparent overlays, picture-in-picture, rescaling the image, or space-, time-, or format-shifting, but also stating that “it enables a lesser form of some of the uses that we’re talking about”).

⁸⁰⁹ *NeTV2*, CROWD SUPPLY, <https://www.crowdsupply.com/alphamax/netv2> (last visited Sept. 27, 2018).

⁸¹⁰ Complaint for Declaratory & Injunctive Relief ¶¶ 90–91, 93, 99–102, *Green v. U.S. Dep’t of Justice*, No. 1:16-cv-01492-EGS (D.D.C. July 21, 2016).

⁸¹¹ Tr. at 155:21–22 (Apr. 24, 2018) (Walsh, EFF).

⁸¹² See, e.g., Tr. at 158:18–159:05 (“[A] person, to take advantage of the exemption, needs to create the technology to do that for their own personal use. So do you mean would Dr. Huang be able to create a device [such as the NeTVCR] for his personal use to take advantage of the exemption? The answer is yes.”); Tr. at 155:12–17 (Apr. 24, 2018) (Walsh, EFF) (suggesting that the NeTVCR is “outside of the scope of the rulemaking”). Consequently, the Acting Register does not consider

that distributing a device such as the NeTVCR may also be a trafficking violation under section 1201(a)(2). Indeed, an overarching contention from opponents is that the true aim of Huang's proposal is to create a commercial market for his NeTVCR, which they argue would enable large-scale piracy of motion pictures.⁸¹³

2. Discussion

a. Scope of the Proposed Class

Huang seeks an extraordinarily broad exemption for all audiovisual works in any medium for all noninfringing uses, the only limitation being that the work be encumbered by HDCP when passing over HDMI. Opponents object, arguing that the statute does not permit such a broad exemption.⁸¹⁴

The Acting Register agrees—the proposal is broader than the statute can bear. To start, it does not seem to constitute “a particular class of copyrighted works” within the meaning of section 1201(a)(1).⁸¹⁵ Congress intended for a class to be “a narrow and focused subset of the broad categories of works . . . identified in section 102 of the Copyright Act,” but audiovisual works are themselves a section 102 category.⁸¹⁶ The Office has suggested that while a class “might be defined in part by reference to . . . the access control measures applied to them[, d]efining an exemption *solely* by reference to . . . the access control measures applied to a work . . . would be inconsistent with Congress's intent in directing the Register and Librarian to define a ‘particular class’ of ‘works.’”⁸¹⁷ Regardless, because HDCP is the industry standard for protecting

Huang's proposal to cover development or distribution of the NeTVCR by his company Alphamax.

⁸¹³ See DCP Class 4 Opp'n at 13; Joint Creators II Class 4 Opp'n at 4, 15–17; Tr. at 176:09–177:03 (Apr. 24, 2018) (Williams, Joint Creators II) (“I think the Office has been hesitant rightly to grant exemptions where it almost invites the market to be created for a certain type of tool. . . . This is circulation of a device that could really lead to a lot of unlawful copying, and it's a device that currently doesn't exist”); Tr. at 168:01–24 (Apr. 24, 2018) (Burger, DCP) (“This proceeding is at odds with the filing in the Federal District Court that all of a sudden we're magically transforming a person who wants to sell a commercial product to do all this to just be doing it for himself. . . . Once you start letting Dr. Huang do this, then I don't know what we're going to be up against in terms of illegitimate boxes out there that are not permitted by the law.”).

⁸¹⁴ See DCP Class 4 Opp'n at 1–2, 13–14; ESA Class 4 Opp'n at 8; Joint Creators II Class 4 Opp'n at 4, 10.

⁸¹⁵ 17 U.S.C. § 1201(a)(1)(C).

⁸¹⁶ 2015 Recommendation at 17 (omission in original) (emphasis omitted) (quoting Commerce Comm. Report at 38).

⁸¹⁷ See *id.* (citing 2006 Recommendation at 9–10, 15–20).

audiovisual works in transit to a display device, limiting the proposal this way does not very meaningfully focus the scope beyond the starting point of all audiovisual works. For this reason alone, the Acting Register cannot recommend granting the request.

Huang's proposal is also overbroad for other reasons. As the 2015 rulemaking stated:

A mere requirement that a use be "noninfringing" or "fair" does not satisfy Congress's mandate to craft "narrow and focused" exemptions. For this reason, the Register has previously rejected broad proposed categories such as "fair use works" or "educational fair use works" as inappropriate. An exemption should provide reasonable guidance to the public in terms of what uses are permitted, while at the same time mitigating undue consequences for copyright owners.⁸¹⁸

Here, the Acting Register cannot make the statutorily required determination that a particular use is likely noninfringing when the record does not sufficiently specify the uses; while some examples are supplied, there remain innumerable unspecified potential uses.⁸¹⁹ Similarly, the Acting Register cannot determine if a user is being adversely affected by the prohibition on circumvention without a fuller description of the uses allegedly being prevented.⁸²⁰ Huang himself seems disinterested in curing this potential deficiency, rather seeking "the full scope of non-infringing uses."⁸²¹

b. Works Protected by Copyright

This class concerns audiovisual works, including motion pictures and video games. There is no dispute that at least some of these works are protected by copyright.

c. Asserted Noninfringing Uses

Even if the class were limited to the uses described in Huang's written comments, the record does not adequately demonstrate they are likely noninfringing. Huang's comments list a number of uses that, for the most part, can broadly be categorized as relating to text and visual overlays, rescaling and remixing video feeds, content analysis

⁸¹⁸ *Id.* at 100 (internal quotation marks omitted); *see also* 2006 Recommendation at 17–19; 2003 Recommendation at 125–26 (rejecting proposed class for "a variety of sometimes unspecified claimed fair uses").

⁸¹⁹ *See* 2015 Recommendation at 15 ("[T]here is no 'rule of doubt' favoring an exemption when it is unclear that a particular use is a fair or otherwise noninfringing use. Thus, a proponent must show more than that a particular use *could* be noninfringing. Rather, the proponent must establish that the proposed use is likely to qualify as noninfringing under relevant law.") (citation omitted).

⁸²⁰ *See* Section 1201 Report at 120–21.

⁸²¹ Tr. at 173:20–21 (Apr. 24, 2018) (Walsh, EFF); *see also* Huang Class 4 Reply at 4.

and alteration, and time-, space-, and format-shifting.⁸²² Huang contends that they are all transformative and thus “unlikely” to cause market harm, involve “works that have been previously published and usually widely disseminated,” “do not borrow an undue amount from the original [work],” and may “fall within the preamble [uses] of Section 107.”⁸²³ He adds that “[i]n many cases, . . . the rescaled or modified image is displayed onscreen and then gone. There is no possibility of substitution because an authorized copy was used as the input and no lasting copy or derivative work results.”⁸²⁴ With regard to space- and format-shifting, Huang acknowledges that the Register “previously rejected exemption requests to engage in these activities,” but argues that “[t]he comments of proponents of [the space- and format-shifting class] in the 2015 Rulemaking provide an ample legal and factual basis to conclude that” these activities are fair use.⁸²⁵

Opponents strongly disagree.⁸²⁶ For example, Joint Creators II argue that “Huang’s cursory discussion of whether his list of hypothetical uses would qualify as fair fails to establish that they would,” for “[i]t is not enough to simply assert that everything at issue is transformative and thus that no copyright owner would be harmed.”⁸²⁷ ESA states that “[i]t simply is not feasible to evaluate whether all the uses that Mr. Huang imagines as covered by the proposed exemption are infringing” and that while “[s]ome

⁸²² See Huang Class 4 Initial at 2–3 (providing illustrations of potential uses, including “displaying a live political debate rescaled so that the text of a commentator’s live blog is presented alongside it,” “rescaling the display of a work so that the text or visual overlay can appear alongside it to notify a home owner that a door has opened or remind a person that they need to take their medicine, or altering a work in real-time to block visual triggers of epilepsy or trauma,” “record[ing] a video gamer’s gameplay and remix[ing] it with audio and visual commentary,” “business[es] rescaling the video to display targeted advertisements in the margins,” “identify[ing] content inappropriate for minors”); Huang Class 4 Reply at 4–5 (providing illustrations of potential uses, including “eliminat[ing] portions of programming that disturb a person with Alzheimer’s who is soothed by other portions of the program,” “engag[ing] in realtime subtitling in [Huang’s] preferred languages,” and “space-, time-, and format-shift[ing] favorite media to a format that will be reliably supported years from now”).

⁸²³ Huang Class 4 Initial at 3–4; see also Tr. at 121:04–05 (Apr. 24, 2018) (Walsh, EFF).

⁸²⁴ Huang Class 4 Initial at 4.

⁸²⁵ *Id.*; see also Huang Class 4 Reply at 3 (making additional arguments that time-, space-, and format-shifting are “[e]stablished [f]air [u]ses with a [l]ong [p]edigree”).

⁸²⁶ See DCP Class 4 Opp’n at 10–11; ESA Class 4 Opp’n at 2, 8–9; Joint Creators II Class 4 Opp’n at 3, 11–13.

⁸²⁷ Joint Creators II Class 4 Opp’n at 13; see also DCP Class 4 Opp’n at 10 (calling Huang’s statements “blanket,” “conclusory,” and “bare,” and arguing that he “ignores the Supreme Court’s explicit call in *Campbell v. Acuff-Rose Music, Inc.* for case-by-case analysis of fair use claims”).

such uses might constitute fair uses,” “Mr. Huang does not put enough parameters around his proposal to ensure that would necessarily be the case.”⁸²⁸ DCP analyzes each of the four fair use factors, including asserting that the proposed potential uses are not transformative, stating that “[n]either adding commercials and subtitles to an audiovisual work, nor recording an entire protected-work in the clear, sufficiently alters the original work’s meaning or expression.”⁸²⁹ In addition, DCP contends that under the fourth factor, “[t]he end result of circumventing HDCP would be an in-the-clear copy of entire works originally protected from infringing distribution” and that, “[a]s history teaches, once a copy is available in the clear, massive online infringement is inevitable and the negative effect on the market for the work will be substantial.”⁸³⁰ Joint Creators II further argue that “at least some of the uses Huang claims he wants to facilitate are likely infringing,” such as space-, and format-shifting,⁸³¹ while others, such as identifying content inappropriate for minors and the commercial expression Huang seeks to enable are “legally suspect.”⁸³²

The Acting Register largely agrees with opponents. While some of Huang’s illustrative uses may potentially be fair use depending upon factual circumstances, that mere possibility is not enough. Instead, “[t]he statutory language requires that the use *is or is likely* to be noninfringing, not merely that the use might plausibly be considered noninfringing.”⁸³³ Here, the record lacks the requisite detail and legal support for the Acting Register to conclude that the uses listed by Huang are or are likely to be noninfringing.

Even though fair use is a “fact-specific inquiry requiring case-by-case consideration,”⁸³⁴ Huang makes no effort to explain why, for example, each of his proposed uses is

⁸²⁸ ESA Class 4 Opp’n at 8–9 (“Mr. Huang describes potential uses in vague and largely categorical terms, and provides a few stylized examples within his categories. This is insufficient.”) (citation omitted); *see also* Tr. at 127: 14–17 (Apr. 24, 2018) (Williams, Joint Creators II) (“[T]here’s no real meat on the bones for most of these uses to enable you to analyze whether they’re fair or not in all instances.”).

⁸²⁹ DCP Class 4 Opp’n at 10.

⁸³⁰ *Id.* at 11.

⁸³¹ Joint Creators II Class 4 Opp’n at 11–12 (first citing 2015 Recommendation at 123; then citing *VidAngel*, 869 F.3d at 862; and then citing 2015 Recommendation at 121).

⁸³² *Id.* at 12 (arguing that rescaling video to display advertisements could “involve infringing the adaptation right or public performance right” and that with regard to identifying inappropriate content, as *VidAngel* demonstrates, “[u]nderstanding the details of the process he is suggesting would be critical to assess whether Huang is describing a lawful use”); *see also* Tr. at 156:25–157:07 (Apr. 24, 2018) (Williams, Joint Creators II).

⁸³³ 2015 Recommendation at 15.

⁸³⁴ 2012 Recommendation at 40 (citing *Campbell*, 510 U.S. at 577).

transformative. Instead, he baldly states that they are and notes that “many of the uses . . . fall within the preamble of Section 107.”⁸³⁵ It is well established, however, that not every use engaged in for one of the purposes listed in the preamble is necessarily a fair use.⁸³⁶ Similarly, Huang provides no evidence to support his conclusion that “market harm [is] unlikely” for each particular use.⁸³⁷ As the Supreme Court has instructed, a “proponent would have difficulty carrying the burden of demonstrating fair use without favorable evidence about relevant markets.”⁸³⁸ Huang’s assertion that these wide-ranging uses “do not usurp the market for the original works”⁸³⁹ fails to consider “whether unrestricted and widespread conduct of the sort engaged in by the [proponent of fair use] would result in a substantially adverse impact on the potential market for the original” work, including “the market for derivative works.”⁸⁴⁰ Nor is the law surrounding Huang’s contention that transformative uses “lie outside of any market that copyright owners may legitimately monopolize” as clear cut as he supposes.⁸⁴¹

These deficiencies are best illustrated by way of some specific use cases. Huang proposes to identify and analyze content to then flag, block, alter, and filter it.⁸⁴² As *Disney Enterprises, Inc. v. VidAngel, Inc.* demonstrates, the way in which content is filtered can be determinative of whether or not it is noninfringing.⁸⁴³ There, the court distinguished one company’s method of content filtering, which involved making an

⁸³⁵ Huang Class 4 Initial at 3.

⁸³⁶ See *Harper & Row*, 471 U.S. at 561 (finding no fair use despite the use being for the preamble purpose of “news reporting”; explaining that the preamble “listing was not intended . . . to single out any particular use as presumptively a ‘fair’ use”).

⁸³⁷ Huang Class 4 Initial at 3–4.

⁸³⁸ *Campbell*, 510 U.S. at 590 & n.21 (“Even favorable evidence, without more, is no guarantee of fairness.”).

⁸³⁹ Huang Class 4 Initial at 3–4.

⁸⁴⁰ *Campbell*, 510 U.S. at 590 (internal quotation marks and ellipses omitted).

⁸⁴¹ Huang Class 4 Initial at 4 (citing *HathiTrust*, 755 F.3d 99). While in *HathiTrust*, the Second Circuit stated that “any economic ‘harm’ caused by transformative uses does not count because such uses, by definition, do not serve as substitutes for the original work,” 755 F.3d at 99, the court subsequently explained that “[e]ven if the purpose of the copying is for a valuably transformative purpose, such copying might nonetheless harm the value of the copyrighted original if done in a manner that results in widespread revelation of sufficiently significant portions of the original as to make available a significantly competing substitute,” *Google Books* 804 F.3d at 223–24 (“The question for us is whether [the use], notwithstanding its transformative purpose, does that.”). The Second Circuit later found market harm even where the use was “at least somewhat transformative.” *TVEyes*, 883 F.3d at 180–81.

⁸⁴² See Huang Class 4 Initial at 3; Huang Class 4 Reply at 4.

⁸⁴³ See 869 F.3d 848 (9th Cir. 2017).

infringing reproduction, from another company's method, which did not make a copy but rather involved a noninfringing fast-forwarding device that used video time codes to skip scenes or mute audio.⁸⁴⁴ Notably, the Ninth Circuit found that "[a]lthough removing objectionable content may permit a viewer to enjoy a film, this does not necessarily" mean that it is a transformative use.⁸⁴⁵ Huang provides no details as to whether his real-time content flagging, blocking, altering, and filtering uses would require the creation of a reproduction and fails to provide specific evidence that such uses are likely to constitute fair use or satisfy the conditions of 17 U.S.C. § 110(11).⁸⁴⁶

Similarly, Huang proposes to engage in "realtime subtitling in his preferred languages," including for educational or personal reasons.⁸⁴⁷ But at least one circuit has described translations as a "[p]aradigmatic example[] of [a] derivative work[]"⁸⁴⁸ that "do[es] not involve the kind of transformative purpose that favors a fair use finding."⁸⁴⁹ While a translation might potentially be fair use under the right circumstances, Huang has not provided sufficient evidence or argument to that effect.⁸⁵⁰

Huang also relies on comments submitted in the 2015 proceeding to support his arguments about space- and format-shifting.⁸⁵¹ In doing so, he even acknowledges that the Register has previously rejected these arguments.⁸⁵² By failing to point to any intervening change in law, Huang has not made an adequate showing that space- and format-shifting are likely noninfringing uses.⁸⁵³

⁸⁴⁴ See *id.* at 856–57, 860.

⁸⁴⁵ *Id.* at 861.

⁸⁴⁶ See 17 U.S.C. § 110(11) (authorizing "the making imperceptible . . . of limited portions of audio or video content of a motion picture" in connection with private home viewing under specified conditions).

⁸⁴⁷ Huang Class 4 Reply at 5; see Tr. at 145:17–146:03 (Apr. 24, 2018) (Walsh, EFF).

⁸⁴⁸ *Google Books*, 804 F.3d at 215 (quoting *HathiTrust*, 755 F.3d at 95).

⁸⁴⁹ *Id.* at 215; see also *Nihon Keizai Shimbun, Inc. v. Comline Bus. Data, Inc.*, 166 F.3d 65, 72–73 (2d Cir. 1999) (holding that making and selling English translations of Japanese news articles was not fair use, reasoning that despite being "for the purpose of news reporting," the translations were "not in the least transformative," and "compete[d] with and supersede[d]" the copyright owner's own English versions of its articles) (internal quotation marks omitted).

⁸⁵⁰ *Cf.* Class 2 (discussing lack of markets for re-captioning and re-describing a program).

⁸⁵¹ See Huang Class 4 Initial at 4; Huang Class 4 Reply at 3.

⁸⁵² See Huang Class 4 Initial at 4.

⁸⁵³ See also Class 3. Moreover, although Huang points to examples noted in *Sony Corp. of America v. Universal City Studios, Inc.*, those examples concerned "time shifting," defined as "record[ing] a program [one] cannot view as it is being televised [] to watch it once at a later time." 2015 Recommendation at 121 (alterations in original) (quoting *Sony*, 464 U.S. at 421); see *Sony*, 464 U.S.

As these examples demonstrate, the deficient record and lack of legal support prevent the Acting Register from being able to conclude that the myriad uses Huang lists are, as a general matter, likely to be noninfringing.

d. Causation

The causation element asks whether Huang’s inability to engage in his proposed uses is “clearly attributable to implementation of a technological protection measure.”⁸⁵⁴ Opponents argue that because HDCP is a link protection that is agnostic as to what it is encrypting, HDCP itself does not prevent the uses Huang seeks.⁸⁵⁵ Instead, they say, the TPMs or functional capabilities on relevant source or display devices are what limit Huang’s ability to engage in his desired uses.⁸⁵⁶ Opponents assert that Huang should instead seek exemptions for the source TPMs that control the relevant functionality on the devices and become moot if HDCP is circumvented.⁸⁵⁷ Huang disputes this, stating that “[c]ircumventing HDCP is the most logical point to access works for the specified uses.”⁸⁵⁸

The Acting Register finds the question of whether the alleged impacts on the proposed uses are sufficiently attributable to HDCP unnecessary to resolve; as noted, she cannot conclude that the proposed uses are likely noninfringing, and the record does not support a finding of any cognizable adverse effects. Because Huang has failed to

at 455 n.40. Huang, in contrast, seeks to convert his media “to a format that will be reliably supported years from now” and for “archiving” purposes.” Huang Class 4 Reply at 5. This “practice of ‘librarying,’ or maintaining long-term copies of works,” however, is precisely the type of activity that, as the Register has repeatedly explained, “[t]he Court declined to address.” 2015 Recommendation at 121 (citing *Sony*, 464 U.S. at 422–23, 442); *see also* 2012 Recommendation at 162–63; 2003 Recommendation at 106.

⁸⁵⁴ 2015 Recommendation at 16 (quoting Commerce Comm. Report at 37).

⁸⁵⁵ *See* DCP Class 4 Opp’n at 2–3, 5 (“HDCP does not impose any restrictions on the content’s use that are not otherwise imposed by the source TPM or by the capabilities of the source or viewing device Therefore, other than the functions performed by the NeTVCR, which would enable the copying and manipulation of content being transmitted via HDMI using HDCP, none of Huang’s categories of uses are actually prevented by HDCP itself.”); Joint Creators II Class 4 Opp’n at 15.

⁸⁵⁶ *See* DCP Class 4 Opp’n at 2–5; ESA Class 4 Opp’n at 4–5 (“[A]ny adverse effects stem from the choice of input/output ports and/or functionality implemented in the devices, not from the prohibition on circumventing HDCP.”).

⁸⁵⁷ *See* DCP Class 4 Opp’n at 6–7, 14; DVD CCA & AACCS LA Class 4 Opp’n at 2–3 (“[C]ircumventing the HDMI/HDCP downstream link in this chain necessarily means that the original protection of the data on the disc has been rendered moot.”).

⁸⁵⁸ Huang Class 4 Reply at 4; *see* Tr. at 119:11–120:22, 138:13–139:01 (Apr. 24, 2018) (Walsh, EFF).

establish legally sufficient adverse effects on a noninfringing use, he cannot satisfy the causation requirement in any event.

e. Asserted Adverse Effects

Even if the Acting Register could conclude that the proposed uses are likely noninfringing, there is not a sufficient record of cognizable adverse effects. Again, the overarching deficiency is that the record is simply too bare, especially on such a broad request, to “show that adverse effects are not merely possible, but probable.”⁸⁵⁹

Under the first statutory factor, Huang argues that “[s]ince many videos and video games are only available in formats subject to TPMs, the exemption is necessary to make them available for the uses authorized by copyright and other law.”⁸⁶⁰ He further contends that “the exemption will not harm market incentives to make works available.”⁸⁶¹ Opponents assert that HDCP has been critical to enabling the current digital ecosystem that makes works more readily available to consumers, and that bypassing HDCP would diminish the availability of works by encouraging infringement and by discouraging use of HDMI to provide authorized access to works.⁸⁶² They note that Huang’s “list [of uses] is not exclusive but ‘includes’ a recitation of general uses without demonstrating any specific adverse effects on users.”⁸⁶³ They claim that “[t]he majority of the examples that are given in Dr. Huang’s petition and in the reply are free to air examples” that “don’t have [a] TPM,” and that “for most of the content that flows over HDMI, it’s unencrypted.”⁸⁶⁴

Opponents further argue that Huang “ignores many alternatives to circumvention, including the existing exemptions for creating criticism and commentary of motion pictures; licensed devices that enable consumers to engage in the activity he claims he

⁸⁵⁹ Section 1201 Report at 120–21.

⁸⁶⁰ Huang Class 4 Initial at 4–5.

⁸⁶¹ *Id.* at 5.

⁸⁶² DCP Class 4 Opp’n at 3 (“[HDCP] has played a critical supporting role in facilitating the growth of the digital content distribution ecosystem.”); ESA Class 4 Opp’n at 5, 9; Joint Creators II Class 4 Opp’n at 6–10 (stating “standards [like HDCP] have led to broader availability of content and devices designed for accessing entertaining motion pictures, audio, and video games” and providing examples, such as online streaming services and over-the-top services, cable and satellite offerings including on-demand and remote access options, and digital rentals).

⁸⁶³ DCP Class 4 Opp’n at 7; *see also* Joint Creators II Class 4 Opp’n at 15 (“[Huang] fails to explain how HDCP or DCP licensing practices prevent these activities or how he intends to enable them. As the Register has concluded in other contexts, it is not enough to speculate about hypothetical uses.”).

⁸⁶⁴ Tr. at 122:16–123:08 (Apr. 24, 2018) (Burger, DCP).

will facilitate; and his own device, the ‘NeTV,’ which appears to enable much of the conduct, he claims, without circumvention.”⁸⁶⁵ For example, Joint Creators II explain that “if you’re accessing a streaming service on your laptop . . . and you’re not running a cable from your laptop to your TV, that doesn’t implicate HDCP” or “[i]f you’re viewing a smart TV and connecting directly to the internet to view a streaming service instead of running it through a set-top box and an HDMI cable, that doesn’t implicate HDCP.”⁸⁶⁶ They also suggest that a user might be able to use the existing smart TV jailbreaking exemption to create an app that, without circumventing HDCP, can perform certain uses, such as real-time translation.⁸⁶⁷ Another example, raised by multiple participants, is that, in addition to numerous televisions that can achieve picture-in-picture or split screen uses, individuals can simply watch one thing on TV while using another device, like a laptop, smartphone, or tablet, to simultaneously view other content.⁸⁶⁸ Regarding Huang’s desire to “recapture the functionality of VCR machines,”⁸⁶⁹ opponents assert that “[m]any of today’s Digital Video Recorders (‘DVRs’) not only have ‘recaptured’ VCR functionality, they have surpassed it.”⁸⁷⁰ DCP provides a detailed appendix listing numerous other purported alternatives to the uses proposed by Huang.⁸⁷¹

In response, Huang argues that “[i]t is not reasonable to require users . . . to acquire new display devices to make noninfringing uses that they could achieve with existing technology via circumvention.”⁸⁷² Huang states that “many of the examples involve the kind of entertainment works like movies, etc., that by admission are typically encumbered by HDCP” and that “many playback devices default to” HDCP which “cannot be disabled,” even for “over-the-air” broadcasts.⁸⁷³ Huang contends that “many of these features don’t exist,” such as the ability to “connect your home assistant to your television and have a blended overlay of information from your home assistant and

⁸⁶⁵ Joint Creators II Class 4 Opp’n at 4, 13–15 (listing alternatives that purportedly enable a number of Huang’s proposed uses); *see also* ESA Class 4 Opp’n at 3–4, 7 (“Existing alternatives can be used to facilitate most or all of the display options that Mr. Huang identifies.”).

⁸⁶⁶ Tr. at 158:05–13 (Apr. 24, 2018) (Williams, Joint Creators II).

⁸⁶⁷ *See* Tr. at 147:16–21 (Apr. 24, 2018) (Williams, Joint Creators II).

⁸⁶⁸ *See* DCP Class 4 Opp’n at Ex. A, at 2; ESA Class 4 Opp’n at 4, 7; Joint Creators II Class 4 Opp’n at 14.

⁸⁶⁹ Huang Class 4 Initial at 3.

⁸⁷⁰ DCP Class 4 Opp’n at 9, Ex. A at 5–6; *see also* Joint Creators II Class 4 Opp’n at 7, 13.

⁸⁷¹ *See* DCP Class 4 Opp’n at Ex. A. DCP noted that there was insufficient market demand for some of Huang’s proposed uses. *See* Tr. at 149:19–150:26, 182:13–24 (Apr. 24, 2018) (Burger, DCP; Williams, Joint Creators II).

⁸⁷² Huang Class 4 Reply at 2; *see also* Tr. at 132:13–25 (Apr. 24, 2018) (Walsh, EFF).

⁸⁷³ Tr. at 123:19–25, 124:08–10 (Apr. 24, 2018) (Walsh, EFF).

whatever you're trying to watch."⁸⁷⁴ Huang also asserts that his NeTV has limited functionality and cannot create transparent overlays, rescale the image, or time-, space-, or format-shift.⁸⁷⁵

Based upon the record, the Acting Register cannot conclude that the overall availability for use of copyrighted works has been diminished or is likely to be in the next three years absent an exemption. Opponents set forth a number of concrete examples of potential alternatives to circumvention that Huang fails to meaningfully challenge. For example, Huang fails to explain why using an existing laptop, smartphone, or tablet while watching TV, or even having multiple windows open on a computer, is an inadequate alternative to picture-in-picture, split screen, and certain rescale uses. While Huang argues that his NeTV device cannot create transparent overlays, he fails to explain why the opaque overlays that the NeTV *does* generate are inadequate for many of the described uses, such as smart home and home assistant messages, reminders, and alerts. Huang also fails to describe why current DVRs on the market, along with the myriad download, rental, streaming, on-demand, disc-to-digital, locker, and remote access options offered by copyright owners (discussed in more detail above in Class 3) are inadequate for his needs. In short, Huang has failed to meaningfully demonstrate that any burden associated with these alternatives rises above the level of a mere inconvenience.

Given the scope of the request, there is at least a possibility that there may not be reasonable alternatives to each and every use listed by Huang. But even so, the statutory analysis does not change. Huang has sought a broad exemption for numerous uses, many of which can be achieved with reasonable alternatives. The Acting Register is not persuaded that the *overall* availability for use has been or is likely to be diminished in the next three years.

Finally, specifically regarding video games, Huang seeks to record gameplay and remix it with commentary, and asserts that some gaming consoles, viz., the PlayStation 3, "use[] HDCP that cannot be disabled through the user interface."⁸⁷⁶ Opponents contend that modern consoles already permit users to capture, edit, livestream, and share gameplay videos, and remix gameplay with audio and visual commentary.⁸⁷⁷ They note that there currently exists a thriving ecosystem for commenting on and sharing

⁸⁷⁴ Tr. at 144:25–145:04 (Apr. 24, 2018) (Walsh, EFF).

⁸⁷⁵ See Tr. at 159:14–160:05, 170:19–171:05 (Apr. 24, 2018) (Walsh, EFF).

⁸⁷⁶ Huang Class 4 Initial at 2.

⁸⁷⁷ See DCP Class 4 Opp'n at 8, Ex. A, at 4–5; ESA Class 4 Opp'n at 2, 4–7; Joint Creators II Class 4 Opp'n at 15.

gameplay.⁸⁷⁸ Huang replies that “[t]he very fact that it has become a feature in modern consoles demonstrates that gaining DRM-free access to audiovisual works output from game consoles is both in demand and broadly acceptable to rightsholders.”⁸⁷⁹

The participants seemingly agree that modern consoles permit the uses Huang seeks.⁸⁸⁰ When asked whether other consoles beyond the PlayStation 3 do not permit these uses, Huang’s counsel could not name any.⁸⁸¹ Examining the PlayStation 3, HDMI appears to be one of several video output options that also include component and composite video.⁸⁸² Huang has not demonstrated that using one of these other outputs is not a reasonable alternative.

Regarding the second and third statutory factors, Huang generally claims that HDCP constrains various favored uses without providing any concrete evidence that HDCP encryption is currently inhibiting those uses from otherwise flourishing.⁸⁸³ Opponents contend that a number of favored uses can already be accomplished via existing exemptions;⁸⁸⁴ Huang agrees that at least some of his uses are already covered.⁸⁸⁵ On this record, the Acting Register is not persuaded that an exemption is warranted under these factors.

Turning to the effect of circumvention on the market for or value of copyrighted works, Huang argues that because the user “already has the ability to view [the content] on an HDCP-enabled playback device,” “[t]he copyright owner has already been

⁸⁷⁸ See ESA Class 4 Opp’n at 2, 6–7. Opponents also contend that “in many instances, HDCP is not even activated when gameplay is transmitted through the HDMI output of a console.” *Id.* at 4.

⁸⁷⁹ Huang Class 4 Reply at 4.

⁸⁸⁰ See *id.*

⁸⁸¹ See Tr. at 126:20–25 (Apr. 24, 2018) (Walsh, EFF).

⁸⁸² See Huang Class 4 Initial at 2 n.2 (citing James T. Wood, *How to Disable HDCP on a PS3*, OUR PASTIMES (Sept. 15, 2017), <https://ourpastimes.com/how-to-disable-hdcp-on-a-ps3-12612586.html> (describing component and composite outputs on PS3)); *Video Output Settings*, PLAYSTATION 3 USER’S GUIDE, <http://manuals.playstation.net/document/en/ps3/current/settings/videooutput.html> (last visited Sept. 27, 2018) (composite video cable supplied with console).

⁸⁸³ See Huang Class 4 Initial at 5.

⁸⁸⁴ See DCP Class 4 Opp’n at 12 (“[T]o the degree source TPMs prevent educational uses . . . educators will be able to do so under the existing/renewed education exemptions or new exemptions . . .”) (internal quotation marks omitted); ESA Class 4 Opp’n at 10 (“[P]reservation and study of video games is addressed adequately by the existing video game preservation exemption.”); Joint Creators II Class 4 Opp’n at 13–14; Tr. at 173:25–26 (Apr. 24, 2018) (Williams, Joint Creators II) (“I think that some of these activities are clearly covered by the existing exemptions.”).

⁸⁸⁵ See Tr. at 173:05–22 (Apr. 24, 2018) (Walsh, EFF).

compensated.”⁸⁸⁶ Huang cursorily alleges that circumventing for his listed uses “does not harm the market for any copyrighted works,” and would instead “increase the value of copyrighted works by enabling new, important uses of those works.”⁸⁸⁷ Huang further asserts that because “HDCP isn’t difficult to circumvent,” it “is not operating to prevent people from [engaging in piracy] if they don’t care about adhering to the law.”⁸⁸⁸

Opponents assert that “HDCP is a critically important component of the secure ecosystem through which content is delivered for home entertainment”⁸⁸⁹ and that it “preserves the incentive to develop and disseminate expressive works” through the security it offers.⁸⁹⁰ They contend that this is exactly what section 1201 was intended to do—to encourage copyright owners to make their works available digitally and foster new means of distribution by providing reasonable assurances against fears of piracy.⁸⁹¹ Opponents argue that Huang’s request “ignores the threat of piracy entirely and brushes over the fact that what he seeks to do is to distribute an illegal circumvention tool.”⁸⁹² They contend that an exemption “is likely to promote a substantial amount of other activity that is infringing” because “users could intercept and reproduce, retransmit, or otherwise infringe the copyrights in valuable copyrighted works more readily than is currently the case in the secure environments in which HDMI is used.”⁸⁹³ They explain that “video-on-demand business models based on charging lower prices for time-limited access to movies are undermined when end users can create complete digital copies of transmitted works to add them to their permanent digital libraries while paying only for temporary access. . . . This would harm consumers, who benefit from having lower-priced options available in the marketplace.”⁸⁹⁴

⁸⁸⁶ Huang Class 4 Initial at 5.

⁸⁸⁷ *Id.*

⁸⁸⁸ Tr. at 142:26–143:18 (Apr. 24, 2018) (Walsh, EFF).

⁸⁸⁹ Joint Creators II Class 4 Opp’n at 15.

⁸⁹⁰ ESA Class 4 Opp’n at 4.

⁸⁹¹ See Joint Creators II Class 4 Opp’n at 15–16 (first citing S. REP. NO. 105-190, at 8 (1998); and then citing Section 1201 Report at 44); ESA Class 4 Opp’n at 4 (citing H.R. REP. NO. 105-551, pt. 1, at 10 (1998)).

⁸⁹² Joint Creators II Class 4 Opp’n at 4; see also DCP Class 4 Opp’n at 13 (“Huang’s many examples . . . are a smoke screen for his real goal: circumventing HDCP to record entire in-the-clear copies of high-value works on his NeTVCR. Once an entire copy of a work is available in the clear and placed on the Internet it is not unreasonable to argue the effect will be a substantial negative one.”).

⁸⁹³ ESA Class 4 Opp’n at 3; see also DCP Class 4 Opp’n at 11.

⁸⁹⁴ Joint Creators II Class 4 Opp’n at 5–6; see also ESA Class 4 Opp’n at 9.

Based upon the record, the proposed activities may well have a negative effect on the market for or value of copyrighted works. Huang's argument that there is no harm because copyright owners have already been compensated for a particular use is inapposite where, as here, there is allegedly an overarching threat of piracy. The Acting Register finds Huang's additional arguments similarly unpersuasive.⁸⁹⁵

The record suggests that circumventing HDCP to carry out the proposed uses creates an unsecure environment where the work can be copied and manipulated. Indeed, opponents raise a serious concern that the exemption, if granted, could potentially compromise a distribution system for audiovisual content that has matured seemingly in part due to the protections offered by section 1201. Huang does not dispute that circumvention could permit virtually anything displayable on a modern television screen to be recorded in the clear and made available online; meanwhile, creators and distributors of these works suggest widespread circumvention could flatten market distinctions between live and scheduled broadcasts, subscription and ad-based streams, and rentals and purchases because all could be captured, copied, and circulated. In short, Huang has failed to make a sufficiently persuasive demonstration that the proposal is unlikely to impair the market for or value of copyrighted works.

Finally, the Acting Register declines to recommend this exemption because Huang's request seems to be an "individual case[]"⁸⁹⁶ of "*de minimis* impact[]." ⁸⁹⁷ Opponents argue that there is little or no market demand for many of Huang's proposed uses and that few other than Huang would actually be able to use the exemption because of the level of expertise needed to circumvent HDCP and to create a device capable of doing all of the things Huang seeks to do.⁸⁹⁸ Huang counters that while "[i]t might be that there's not a mass market for a display device or an intermediate device that lets you do all of the things that Dr. Huang wants to do," "[t]hat doesn't mean that he shouldn't have the right to do it."⁸⁹⁹

While "the Register does not decline to recommend exemptions solely because only a small number of individuals would benefit from it," "it certainly may be appropriate to weed out edge cases where permitting circumvention broadly may impact the market

⁸⁹⁵ The fact that licensed devices may permit some proposed uses is not evidence that the uses would not damage copyright owners' interests if made via circumvention. *But see* Huang Class 4 Reply at 2. When made on a licensed device, the use is carried out within the protected space HDCP and related TPMs provide.

⁸⁹⁶ 2015 Recommendation at 16 (quoting House Manager's Report at 6).

⁸⁹⁷ *See id.* (quoting Commerce Comm. Report at 37).

⁸⁹⁸ *See* Tr. at 148:23–154:10, 161:09–21, 167:21–169:18, 182:13–24 (Apr. 24, 2018) (Burger, DCP; Taylor, DVD CCA & AACS LA; Williams, Joint Creators II); *see also* DCP Class 4 Opp'n at 6.

⁸⁹⁹ Tr. at 154:17–22 (Apr. 24, 2018) (Walsh, EFF).

for copyrighted works.”⁹⁰⁰ Given the above discussion and the lack of concrete evidence demonstrating a verifiable need for anyone to circumvent to engage in all of the uses sought by Huang, this request is such an “edge case.”

Further, even the potential impact on Huang’s professed personal uses seems to be *de minimis*. Huang does not reside in the United States, which means that even if there were adverse effects, Huang would only be harmed by them when visiting this country—not in his day-to-day life at home in Singapore.⁹⁰¹ And Huang has not established that he needs to be in the United States to engage in his proposed uses.

The Acting Register does not find proponents’ other arguments persuasive. Accordingly, on the present record, the Acting Register cannot find that the inability to engage in the proposed activities is adversely affecting, or in the next three years is likely to affect, consumers’ ability to make noninfringing uses of copyrighted works.

3. NTIA Comments

NTIA agrees with the Acting Register that an exemption for this class is not warranted.⁹⁰² NTIA recognizes that “[p]roponents did not provide sufficient evidence on the record about the alleged non-infringing uses,” and that “[w]hile there are several examples of potential non-infringing uses that could serve as the basis for an exemption, the proponents have not developed the argument in the record here.”⁹⁰³ Rather, NTIA observes that the proposed exemption “appears to be for the HDCP TPM itself, which is not appropriate for this rulemaking process.”⁹⁰⁴ NTIA notes, however, that “some of proponent’s sought uses may be supported by other current exemptions that the Register has recommend[ed] be renewed, such as the Smart TV exemption.”⁹⁰⁵

4. Conclusion and Recommendation

Based on the record presented, an appropriate class has not been established. Moreover, the Acting Register cannot conclude that the prohibition on circumvention has, or is likely to have, an adverse impact on noninfringing uses of the underlying audiovisual works. The Acting Register declines to recommend an exemption for this class.

⁹⁰⁰ Section 1201 Report at 121.

⁹⁰¹ Complaint for Declaratory & Injunctive Relief ¶ 6, *Green v. U.S. Dep’t of Justice*, No. 1:16-cv-01492-EGS (D.D.C. July 21, 2016); see Tr. at 183:23–26 (Apr. 24, 2018) (Walsh, EFF) (alleging Huang spends “significant time” in the U.S.).

⁹⁰² NTIA Letter at 39.

⁹⁰³ *Id.*

⁹⁰⁴ *Id.*

⁹⁰⁵ *Id.* at 39 n.197; see 37 C.F.R. § 201.40(b)(5) (2016).

E. Proposed Class 5: Computer Programs—Unlocking

1. Background

a. Summary of Proposed Exemption

Proposed Class 5 would expand an existing exemption for activity known as unlocking, that is, circumvention of access controls on computer programs for the purpose of enabling a wireless device to connect to a different mobile network provider. As noted above, the 2015 rulemaking adopted an exemption permitting the unlocking of used cellphones, all-purpose tablet computers, portable mobile connectivity devices, such as mobile hotspots, and wearable devices, such as smartwatches or fitness devices.⁹⁰⁶ In this proceeding, ISRI filed petitions for two modifications to this exemption that would (1) remove the subcategories and permit circumvention to unlock “any wireless device”;⁹⁰⁷ and (2) eliminate the requirement that a wireless device be “used,” *i.e.* previously activated on a wireless carrier.⁹⁰⁸ Specifically, ISRI proposed the following language:

Computer programs that enable the following types of wireless devices to connect to a wireless telecommunications network, when circumvention, including individual and bulk circumvention, is undertaken by the owner of any such device, by another person at the direction of the owner, or by a provider of a commercial mobile radio service or a commercial mobile data service at the direction of such owner or other person, solely in order to connect to a wireless telecommunications network and such connection is authorized by the operator of such network.⁹⁰⁹

ISRI states that the language referring to “individual and bulk circumvention” at the direction of a device owner was meant “purely as clarification.”⁹¹⁰ It suggests, however, that this change may be unnecessary given that the Office agrees that the current exemption permits bulk unlocking.⁹¹¹ Comments supporting the proposed modifications were also filed by Consumers Union and the FSF, and iFixit testified in support of the proposed class. No oppositions were filed.

⁹⁰⁶ 37 C.F.R. § 201.40(b)(3) (2016).

⁹⁰⁷ ISRI Class 5 Pet. 1 at 2.

⁹⁰⁸ ISRI Class 5 Pet. 2 at 2.

⁹⁰⁹ ISRI Initial at 5.

⁹¹⁰ Tr. at 135:06–18 (Apr. 23, 2018) (Connelly, ISRI).

⁹¹¹ Tr. at 135:06–18 (Apr. 23, 2018) (Connelly, ISRI); *see* 2015 Recommendation at 169 (adverse effect finding “includes entities that obtain used cellphones and unlock them in bulk for redistribution or resale”).

b. Overview of Issues

As explained in greater detail during the 2015 rulemaking, devices that connect to a wireless telecommunication network may contain TPMs to prevent use of the device on a different network, even if the telecommunications radios and other hardware in the device have the technical capability to operate on another network.⁹¹² Wireless carriers can do this by preventing devices from accepting a subscriber identity module (“SIM”) card from a competing carrier, by requiring input of a special code from the original carrier to enable use of competing networks, or by locking a device to operate on a subset of the wireless frequencies that it has the hardware to otherwise communicate over.⁹¹³ Here, Mr. Wiens described the relevant TPM as a lock in the software on a device’s baseband chip, which allows the device to communicate with a cellular network.⁹¹⁴ Circumvention to “unlock” a wireless device for use on other networks can occur by inputting special codes or running software to exploit security vulnerabilities and remove the software lock.⁹¹⁵

The Copyright Office has received petitions to permit the unlocking of cellphones since 2006. In 2015, as directed by the Unlocking Consumer Choice and Wireless Competition Act (“Unlocking Act”),⁹¹⁶ the Register considered whether to expand the exemption to additional categories of wireless devices. Based on the record in that proceeding, the Register recommended, and the Librarian granted, an exemption covering the current categories of devices. The Register determined that for some subset of wireless customers, unlocking such devices is likely noninfringing under section 117, and that “unlocking as a general matter is also likely to be a fair use.”⁹¹⁷ The Register declined, however, to recommend a proposal to include all “consumer machines” or “smart devices” in the class because she found that its proponents failed to provide “any specification information” about the kinds of devices that would be included or the noninfringing uses that would be facilitated by circumvention.⁹¹⁸

The current exemption also is limited to used devices. First adopted in 2010,⁹¹⁹ this limitation was implemented in response to concerns raised by wireless carriers engaged

⁹¹² 2015 Recommendation at 138.

⁹¹³ *Id.* at 144–45.

⁹¹⁴ Tr. at 139:01–11 (Apr. 23, 2018) (Wiens, iFixit)

⁹¹⁵ 2015 Recommendation at 144–45; *see also* Tr. at 140:11–17 (Apr. 23, 2018) (Wiens, iFixit) (stating that circumvention involves “modifying a bit on [the] baseband”).

⁹¹⁶ Pub. L. No. 113-144, § 2(c), 128 Stat. 1751, 1751–52 (2014).

⁹¹⁷ 2015 Recommendation at 162.

⁹¹⁸ *Id.* at 167, 170.

⁹¹⁹ *See* 37 C.F.R. § 201.40(b)(3) (2011).

in the business of selling cellphones at substantially discounted prices and recouping that investment through the sale of prepaid wireless service.⁹²⁰ These companies feared that including new phones in the class could foster illegal trafficking activity, which involves “the bulk purchase of unused handsets that have been offered for sale at subsidized prices . . . and then unlocking and reselling those unlocked handsets for a profit.”⁹²¹ In 2015 the wireless provider TracFone filed comments opposing any exemption that “could be construed to immunize illegal activities of phone traffickers.”⁹²² The Register found “universal agreement” among the parties that “any exemption for cellphones should be fashioned so as to exclude trafficking activities that seek illegitimately to profit from subsidies offered by prepaid phone providers.”⁹²³ As in prior rulemakings, she concluded that this could be accomplished through a requirement that the devices be used, which the 2015 exemption defines to refer to devices that have “previously been lawfully acquired and activated on the wireless telecommunications network of a wireless carrier.”⁹²⁴

Proponents in this proceeding request removal of both the list of covered device categories and the limitation to used devices. As to the former, proponents seek to unlock “connected devices of all types, sizes and applications” (*i.e.*, the Internet of Things, or “IoT”), noting that all of these devices connect to wireless networks and arguing that consumer choice is necessary for them as well.⁹²⁵ Proponents point to NTIA’s 2012 and 2015 submissions supporting a broad exemption for “all wireless devices that connect to a wireless network”⁹²⁶ and warn that the rapid pace of innovation within the IoT industry makes it impossible to predict the specific categories of wireless devices that consumers may need to unlock.⁹²⁷ In its reply comments, ISRI cites home security systems, farming equipment, and car GPS trackers as examples of wireless devices presenting such a need.⁹²⁸

Regarding the “used” limitation, proponents argue that illegal trafficking does not implicate copyright interests and that concerns about such activity therefore are outside

⁹²⁰ See 2015 Recommendation at 156.

⁹²¹ *Id.* at 145.

⁹²² TracFone 2015 Class 11 Opp’n at 3.

⁹²³ 2015 Recommendation at 169.

⁹²⁴ *Id.* 169–71.

⁹²⁵ ISRI Class 5 Initial at 5–6.

⁹²⁶ *Id.* at 6 (quoting Letter from Lawrence E. Strickling, Assistant Sec’y for Commc’ns & Info., Nat’l Telecomms. & Info. Admin., U.S. Dep’t of Commerce, to Maria A. Pallante, Register of Copyrights and Dir., U.S. Copyright Office, at 39 (Sept. 18, 2015) (“NTIA 2015 Letter”).

⁹²⁷ ISRI Class 5 Initial at 6.

⁹²⁸ ISRI Class 5 Reply at 4–6.

the proper scope of this rulemaking.⁹²⁹ Moreover, they argue, such a limitation is unnecessary given that TracFone has successfully sued traffickers on causes of action other than section 1201.⁹³⁰ Proponents further suggest a need to unlock unused devices not present in 2015, offering examples of corporations acquiring excess devices that are never activated but that they later seek to recycle.⁹³¹

2. Discussion

a. Works Protected by Copyright

This class again involves computer software running on wireless devices, which can include TPMs as part of the code itself. Proponents suggest that the relevant copyrighted works for the entire class are the computer programs running on the baseband processors in these devices⁹³² and other software such as operating systems.⁹³³ The Acting Register agrees that in both cases the software constitutes a computer program within the meaning of section 101 and therefore finds that at least some works included in the proposed expanded class are protected by copyright.⁹³⁴

b. Asserted Noninfringing Uses

The 2015 rulemaking identified several bases for the proposition that unlocking wireless devices is a noninfringing use, including that (1) some methods of unlocking, such as inputting unlock codes, do not implicate a section 106 exclusive right; (2) section 117 privileges some forms of unlocking; and (3) “unlocking as a general matter” is likely to be a fair use.⁹³⁵ Proponents appear to be relying on the 2015 rulemaking analysis in support of the requested modification and incorporate by reference the 2015 Recommendation to avoid “undertak[ing] a detailed analysis of those factors.”⁹³⁶ Though no opposition comments were filed, the Acting Register has an independent obligation to ensure that the proposed uses are likely to be noninfringing.

⁹²⁹ ISRI Class 5 Initial at 4.

⁹³⁰ *Id.* (citing NTIA 2015 Letter at 41).

⁹³¹ *Id.* at 4. According to ISRI, third parties recycling or reselling wireless devices may receive “tens of thousands” devices each month, which can be either used or new. ISRI Class 5 Reply at 2.

⁹³² See Tr. at 139:01–20 (Apr. 23, 2018) (Wiens, iFixit).

⁹³³ ISRI Class 5 Initial at 9; Tr. at 139:17–20, 140:11–17 (Apr. 23, 2018) (Wiens, iFixit).

⁹³⁴ See 17 U.S.C. § 101 (definition of “computer program”).

⁹³⁵ 2015 Recommendation at 159–64.

⁹³⁶ ISRI Class 5 Initial at 7.

i. No Prima Facie Infringement

In the past three rulemakings, the Register has concluded that unlocking often can be accomplished “simply by changing variables in the cellphone’s software in a manner that is intended by the software’s creator.”⁹³⁷ Such activity, the Register has concluded, is noninfringing because it does not involve reproducing the device software or creating a derivative work.⁹³⁸ Here, the record suggests that this method of unlocking remains possible for some devices.⁹³⁹ Proponents do not, however, argue that all of the additional devices they seek to cover under their proposed expansion can be unlocked in this manner. They accordingly must provide an additional legal basis to support a finding that their proposed activities likely are noninfringing.

ii. Section 117

The Register has previously found that in some cases, the reproduction and adaptation of device software for unlocking purposes may be protected under section 117(a).⁹⁴⁰ That provision authorizes the owner of a copy of a computer program to make or authorize the making of another copy where doing so is “an essential step in the utilization of the computer program in conjunction with a machine.”⁹⁴¹ In 2015 the Register found “some evidence” that the owner of a wireless device qualifies as the owner of the copy of the device software for purposes of section 117(a).⁹⁴² She concluded that those users likely satisfy the legal standards governing ownership under section 117(a) because the software is stored on the device itself, device owners have the right to use the device software indefinitely, and they have the right to discard or destroy the device (including its software).⁹⁴³ She further found that reproduction or adaptation of device software to allow it to operate with a carrier of the user’s choice likely constitutes an “essential step” in the utilization of the program within the meaning of section 117(a).⁹⁴⁴

⁹³⁷ 2015 Recommendation at 160 (citation omitted); 2012 Recommendation at 90; 2010 Recommendation at 134. As noted in 2015, such a system may “not function as a TPM at all,” in which case an exemption is not needed. 2015 Recommendation at 160.

⁹³⁸ 2015 Recommendation at 160.

⁹³⁹ See Tr. at 145:12–146:11 (Apr. 23, 2018) (Wiens, iFixit) (referring to use of manufacturer’s “unlock codes”).

⁹⁴⁰ See 2015 Recommendation at 160–62; 2012 Recommendation at 93; 2010 Recommendation at 138, 167.

⁹⁴¹ 17 U.S.C. § 117(a)(1).

⁹⁴² 2015 Recommendation at 161.

⁹⁴³ *Id.*

⁹⁴⁴ *Id.* at 162.

The Register’s prior analysis of these issues did not depend on the relevant devices being used. The same factors as indicating ownership of the software copy are equally applicable to unused devices (assuming the purchase has been completed and the device paid for), as are the Register’s conclusions regarding the “essential step” requirement. Moreover, the relevant law has not changed since 2015.⁹⁴⁵ The Acting Register accordingly concludes that the unlocking of unused devices in the categories enumerated in the current exemption is likely noninfringing under section 117(a).

Proponents have not, however, provided evidence that would allow the Acting Register to reach the same conclusion with respect to wireless devices generally. In 2015 the Register’s finding that the relevant device owners likely own the embedded software copies relied in part on evidence that the manufacturers of mobile operating systems “expressly permit the transfer of the software to a third party in connection with the sale of a device.”⁹⁴⁶ Here, no evidence was presented indicating to what extent such software transfers are permitted in the context of other devices. In particular, it is unclear whether manufacturers of the software in the large-scale equipment cited by ISRI—for example, trucks, trains, “remote weather monitoring stations and seismic monitors,” or traffic lights⁹⁴⁷—maintain transfer policies similar to those governing the very different devices covered by the existing exemption, which are largely consumer-facing in nature. Indeed, it seems plausible that some of these devices would be leased. Because proponents have failed to demonstrate that owners of additional types of wireless devices would qualify as owners of the copies of the software embedded in them, they cannot, on this record, establish that unlocking those devices is likely noninfringing under section 117(a).

iii. Fair Use

1) Unused Devices

As noted, the Register in 2015 concluded that “unlocking as a general matter is . . . likely to be a fair use.”⁹⁴⁸ She found that while the first factor was “somewhat mixed,” it “tend[ed] to support a finding of fair use” because enabling interoperability has been

⁹⁴⁵ The only appellate case to consider either holding since the 2015 rulemaking is *Adobe Sys. Inc. v. Christenson*, 809 F.3d 1071 (9th Cir. 2015), where the Ninth Circuit held that failure to disclose software license terms during discovery foreclosed the argument that a purchaser of software did not own the copy for first sale purposes under section 109. *Id.* at 1080.

⁹⁴⁶ 2015 Recommendation at 161 n.1037.

⁹⁴⁷ ISRI Class 5 Initial at 7; Tr. at 178:07–09 (Apr. 23, 2018) (Wiens, iFixit) (suggesting traffic lights have cellular service).

⁹⁴⁸ 2015 Recommendation at 162.

recognized by courts as a favored purpose under the law.⁹⁴⁹ For the second factor, the Register found that the nature of the programs “weigh[ed] strongly” in favor of fair use because they are used to connect wireless devices to wireless networks, and thus are “highly functional.”⁹⁵⁰ As to the third factor, the Register found that even if unlocking requires significant copying or alteration of software, this factor warrants “only modest weight” because the use is necessary to engage in an otherwise legitimate activity.⁹⁵¹ Finally, under the fourth factor, the Register found no evidence that “the market for software used to operate cellphones or other wireless devices would be harmed by allowing those devices to be unlocked,” except in the case of prepaid cellphones.⁹⁵² As to those devices, she found that the unlocking of “new, carrier-subsidized prepaid cellphones . . . may facilitate illicit and commercially harmful activities.”⁹⁵³

In considering proponents’ current request to expand the exemption to unused devices, the Acting Register concludes that the 2015 analysis under the first three factors is equally applicable to new devices as it is to used. Therefore, the relevant question is whether, under the fourth factor, extending the exemption to unused devices of the types currently covered would adversely affect the market for or value of the embedded software used to connect to wireless networks. Although ISRI does not directly address the fair use factors, it suggests that any market harm resulting from illegal trafficking in unused devices is not cognizable under factor four because it relates to “protecting a particular business model, not [to] protecting the integrity or preventing the copying of the underlying software on the phone.”⁹⁵⁴

After considering the arguments and the record in this class, the Acting Register agrees that the unlocking of unused devices is unlikely to harm the market for or value of the relevant software for purposes of the fourth factor. Case law regarding this factor focuses on whether a use “serve[s] as a market substitute for the original or potentially licensed derivatives,” not simply on whether a copyright owner may face any economic impact from a proposed use.⁹⁵⁵ In the case of subsidized prepaid cellphones, a wireless provider (*e.g.*, TracFone) purchases devices from the manufacturer and subsequently offers them for sale to the public at a substantial discount on the theory that it will

⁹⁴⁹ *Id.* at 162–63 (citing *Computer Entm’t, Inc. v. Connectix Corp.*, 203 F.3d 596, 607–08 (9th Cir. 2000), and *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1522–23 (9th Cir. 2000), *as amended* (Jan. 6, 1993)).

⁹⁵⁰ 2015 Recommendation at 163.

⁹⁵¹ *Id.*

⁹⁵² *Id.* at 163–64.

⁹⁵³ *Id.* at 164.

⁹⁵⁴ ISRI Class 5 Initial at 4.

⁹⁵⁵ *Campbell*, 510 U.S. at 587.

recoup its losses through the sale of wireless service.⁹⁵⁶ Trafficking involves purchasing those subsidized phones in bulk, unlocking them, and then reselling them for profit, often overseas, thereby denying the wireless provider the opportunity to recover its investment.⁹⁵⁷ Although such activity certainly harms the network provider's ability to sell devices at a discount, and thus perhaps could dissuade the provider from purchasing devices from the manufacturer in the first place, any resulting harm to the value of the device software is not the result of an infringing product substituting for the manufacturer's software in the marketplace—for example, a competing device utilizing the manufacturer's copyrighted software. Rather, as described by TracFone, the harm results from traffickers "stealing the subsidies that were intended to benefit legitimate American consumers" and in turn "denying TracFone sales and business relationships [with] potential long-term customers."⁹⁵⁸ While such activity should in no way be condoned, it does not involve the type of harm with which the fourth fair use factor ordinarily is concerned. Furthermore, as ISRI notes, other causes of action are available to address any injury to non-copyright interests.⁹⁵⁹

Based on the foregoing, the Acting Register concludes that unlocking the types of devices covered by the current exemption is likely a fair use, regardless of whether the devices are new or used.

2) *Additional Device Categories*

In 2015 the Register limited her fair use analysis to the categories of devices for which there was specific evidence. She found the record too sparse to assess whether unlocking of "consumer machines" was likely fair, noting that for those works, the evidence did not show "whether unlocking would require creation of copies or derivative works . . . [or] whether permitting unlocking is likely to adversely impact the market for copyrighted works."⁹⁶⁰ Here, the evidence is similarly scant, and proponents' comments do not discuss the application of the fair use factors in this context. Thus, while the Acting Register appreciates there is an argument that unlocking likely is a fair use regardless of the type of device involved, she is unable to make that determination based on such a limited record.

⁹⁵⁶ See 2015 Recommendation at 156.

⁹⁵⁷ See *id.*

⁹⁵⁸ TracFone 2015 Class 11 Opp'n at 2, 6.

⁹⁵⁹ See ISRI Class 5 Initial at 4 (citing NTIA 2015 Recommendation at 41); see also, e.g., First Amended Complaint and Demand for Jury Trial, *TracFone Wireless, Inc. v. Mohamed*, No. 4:14-cv-00685-RH-CAS (N.D. Fla. Jan. 3, 2015), ECF No. 10 (alleging unfair competition, unjust enrichment, and trademark infringement).

⁹⁶⁰ 2015 Recommendation at 164.

As discussed further below, however, proponents did provide evidence regarding three categories of devices: home security devices, agricultural equipment, and vehicle GPS trackers. The record indicates that these devices are similar to those covered by the current exemption in that they appear to be primarily intended for use by individual end users.⁹⁶¹ Because owners of these devices appear to be similarly situated to owners of devices covered by the current exemption, the Acting Register concludes that the same fair use analysis should govern. The Acting Register thus finds that unlocking these devices would serve the favored purpose of achieving software interoperability; that the relevant software is highly functional in nature; that the reproduction or modification of the software likely is necessary to accomplish a legitimate purpose; and that unlocking these devices is unlikely to harm the market for or value of the software. The Acting Register therefore finds that unlocking these specific categories of devices is likely to be a fair use.

In sum, the Acting Register finds that proponents have met their burden to demonstrate that unlocking unused cellphones, tablets, mobile connectivity devices, and wearables, as well as unlocking home security devices, agricultural equipment, and vehicle GPS trackers, are likely to be noninfringing uses. This does not end the inquiry, however. To obtain an expanded exemption, proponents still must demonstrate that the bar on circumvention is causing, or is likely to cause, an adverse effect on those uses.

c. Causation

The Acting Register finds that proponents have met their burden of showing that the current qualifying language limits their ability to unlock wireless devices beyond the enumerated categories in the current exemption. In this class, however, the issue of causation is intertwined with questions related to whether the specific activities described by proponents are in fact being impacted by section 1201. Therefore, in the next section, the Acting Register will address whether proponents have successfully established that the prohibition on circumvention is the cause of their asserted adverse effects with respect to specific types of devices.

d. Asserted Adverse Effects

i. Unused Devices

ISRI argues the current exemption has an adverse effect on users' legitimate interest in unlocking unused devices. It notes that while it did not oppose the 2015 exemption's

⁹⁶¹ See ISRI Class 5 Reply at 4–6 (focusing on adverse effects for only these three categories of devices, beyond used/new debate); Tr. at 149:23–15:01 (Apr. 23, 2018) (Wiens, iFixit) (testifying that child monitors are similar to security systems).

limitation to used devices, the intervening three years have given rise to a need to unlock new devices:

ISRI members now periodically obtain and need to recycle and/or resell new devices, particularly wireless handsets. This may happen in a variety of settings. For example, corporations or other organizations often purchase a significant quantity of new phones in order to equip numerous employees and/or to maintain a stock of spares, and then end up reselling to recyclers or resellers a number of extra devices that have gone unused by employees (and are thus still “new” under the definition in the 2015 exemption), because the purchase was larger than needed or because of an intervening company-wide upgrade or switch to other devices. In such cases, the recycler or reseller will acquire a quantity of the phones and need to unlock them for resale, just as they do with used phones.⁹⁶²

At the hearing, Mr. Wiens indicated that recyclers’ interest in unlocking unused devices is not limited to cellphones. He reported an instance of a recycler in the possession of unused smartwatches that cannot be sold for their full value because of the prohibition on unlocking.⁹⁶³

Looking to the statutory factors, the first factor, the availability for use of copyrighted works, favors extending the exemption to unused devices. Proponents have provided evidence that unlocking unused devices allows them to be recycled and reused rather than discarded or used as scrap.⁹⁶⁴ Because unlocked devices are more valuable for resale, an exemption for unlocking those devices, including unused devices, will expand the availability of the copyrighted software within them by enabling them to continue their functional use. There is no evidence in the record suggesting that expanding unlocking to unused devices will decrease the availability of copyrighted works.

The second factor, the availability for use of works for nonprofit archival, preservation, and educational purposes, and the third factor, the effect on criticism, comment, news reporting, teaching, scholarship and research, are neutral. As in the last rulemaking,

⁹⁶² ISRI Class 5 Initial at 4.

⁹⁶³ See Tr. at 138:04–17 (Apr. 23, 2018) (Wiens, iFixit); see also Tr. at 172:25–173:05 (Apr. 23, 2018) (Connelly, ISRI) (stating that recyclers’ inability to obtain an adequate price for other connected devices will become a common program); Tr. at 145:12–20, 146:12–25 (Apr. 23, 2018) (Wiens, iFixit; Connelly, ISRI) (stating that recyclers contract with retailers to dispose of returns, which are considered new under the definition in the current exemption).

⁹⁶⁴ ISRI Class 5 Reply at 1–2; Tr. at 172:09–13, 172:21–24 (Apr. 23, 2018) (Connelly, ISRI).

general observations that unlocked devices could serve as tools for these uses are insufficient to weigh this factor in either direction.⁹⁶⁵

For the fourth factor, the effect of circumvention on the market for copyrighted works, the record lacks evidence that expanding the unlocking exemption to cover unused devices would harm the market for copyrighted works. As discussed, such devices have been excluded from prior exemptions based on concerns expressed by some wireless service providers that allowing the unlocking of unused devices could facilitate cellphone trafficking. As explained above, however, it is not clear that the economic harm caused by that activity affects the value of the computer programs allowing devices to connect to wireless networks. And, such harms are separately addressed through other laws. Indeed, it is worth noting that the party advocating in support of limiting the exemption to used devices in 2015—TracFone—did not participate in this proceeding. In fact, as noted, no party filed oppositions in this class.

Moreover, while the evidence indicating a need to unlock unused devices relates primarily to cellphones, the record reflects some legitimate interest on the part of users in unlocking other types of new devices, particularly in promotion of environmental responsibility. No parties expressed concern regarding trafficking in devices other than cellphones, and in fact the references to subsidy theft in the 2012 and 2015 rulemakings pertain exclusively to phones.⁹⁶⁶ The record thus provides no basis to find that the requested expansion would adversely affect the market for the other devices encompassed by the current exemption.

The Acting Register does not find any additional factors relevant to the adverse effects analysis. Accordingly, she finds that proponents have demonstrated that absent an exemption, they are likely to be adversely affected in their ability to unlock unused cellphones, tablets, mobile connectivity devices, and wearable devices.

ii. All Wireless Devices

Proponents argue that the adverse effects arising from the inability to unlock devices are not limited to the devices covered by the current exemption but are applicable to wireless devices generally. In their view, the pace of innovation in the connected devices industry is so swift that limiting unlocking to narrow categories of devices will needlessly stifle innovation.⁹⁶⁷ Proponents note that NTIA has previously recommended this expansion on the ground that there is little practical difference between wireless

⁹⁶⁵ See 2015 Recommendation at 167–68.

⁹⁶⁶ See Cellular Telecomm. Indus. Ass’n 2012 Class 6 Initial at 49–50; TracFone 2015 Class 11 Opp’n at 11–12; see also 2015 Recommendation at 163–64; 2012 Recommendation at 87.

⁹⁶⁷ ISRI Class 5 Initial at 5–6 (arguing that pace of innovation in connected devices industry makes category-based exemptions for unlocking “unrealistic” and “unnecessary”).

phones and other devices for purposes of unlocking.⁹⁶⁸ In support of this broad expansion, ISRI's initial comments cite examples of various smart devices that include wireless technology, including child monitors, modems embedded within automobiles, agricultural equipment, and animal trackers.⁹⁶⁹ Proponents seek to illustrate that there are numerous devices capable of communicating over wireless networks and that owners of such devices likewise should be free to transfer to a different service provider.

The Acting Register finds this submission insufficient to demonstrate that owners of wireless devices of all types are likely to be adversely affected by the bar against circumvention. ISRI's initial comments offer only "a handful of examples" of wireless devices, and those consist entirely of one- or two-sentence descriptions of each.⁹⁷⁰ They do not indicate whether, or to what extent, owners of such devices have sought to unlock them and have been deterred by section 1201. In fact, ISRI acknowledged at the hearing that "we don't have specific examples that demonstrate" consumers seeking to unlock automobile GPS trackers or other devices.⁹⁷¹ These statements are inadequate to enable the Acting Register to assess whether the asserted adverse effects pertaining to these devices describe actual or likely harms, or instead are merely speculative.⁹⁷² This is not to suggest that proponents must identify separate adverse effects for every type of device for which they seek an exemption. Here, however, proponents' comments fail to make even a minimal showing that users of many types of wireless devices are similarly harmed by the inability to unlock them.⁹⁷³

Moreover, in the case of at least some of ISRI's examples, adverse effects appear unlikely. For example, ISRI concedes that child trackers are "included in the current exemption" as wearable devices.⁹⁷⁴ Likewise, animal trackers that are "built into collars"⁹⁷⁵ are a type of wearable device covered by the existing exemption. In addition, ISRI refers to vehicle-embedded modems such as OnStar, but provides no evidence to

⁹⁶⁸ *Id.* at 6 (quoting NTIA 2015 Letter at 39).

⁹⁶⁹ *Id.* at 6–7.

⁹⁷⁰ *Id.*

⁹⁷¹ Tr. at 158:18–20 (Apr. 23, 2018) (Scher, ISRI); *see also* Tr. at 180:10–15 (Apr. 23, 2018) (Wiens, iFixit) (same for industrial monitoring equipment such as oil pipelines).

⁹⁷² *See* 2012 Recommendation at 8 ("Claims based on 'likely' adverse effects cannot be supported by speculation alone.") (citation omitted).

⁹⁷³ *See* House Manager's Report at 7 (suggesting that Register should look to whether the prohibition on circumvention affects the availability of works in different categories in the same way).

⁹⁷⁴ Tr. at 150:09–26 (Apr. 23, 2018) (Connelly, ISRI).

⁹⁷⁵ ISRI Class 5 Initial at 7.

counter the Register’s 2015 determination that “there are currently no apparent means for users to unlock in-vehicle telematics and communications systems.”⁹⁷⁶

Subsequently, in its reply comments, ISRI provided more detailed and concrete discussion about the functioning and noninfringing use of three categories of devices: consumer security systems, farming equipment, and automobile GPS trackers.⁹⁷⁷ This evidence likewise is insufficient to establish that users of *all* wireless devices will suffer adverse effects absent an exemption, but the Acting Register will consider whether proponents have made such a showing as to these specific categories.

Home security systems. Proponents suggest that the inability to unlock cellular-connected home security systems such as Google’s Nest Secure could lead to adverse effects where the system is later shut down, or where a consumer’s home has poor wireless coverage.⁹⁷⁸ At the hearing, Mr. Wiens cited the example of Revolv, a smart home security system purchased by Nest and subsequently discontinued.⁹⁷⁹ In such a circumstance, he explained, a recycler may be able to “swap out the SIM cards” from hardware units of former subscribers—thereby enabling the devices to connect to a different wireless network—and then resell them, presumably to be used with a different security provider.⁹⁸⁰ Similarly, ISRI notes that services such as Nest Secure and SimpliSafe have relationships with specific cellular service providers, and it argues that consumers in areas with limited connectivity should be free to obtain service from a different provider if they so choose.⁹⁸¹

These examples, the Acting Register concludes, are inadequate to satisfy the statutory requirement to demonstrate actual or likely adverse effects resulting from the bar on circumvention. As the Office has noted, for an exemption to issue, the statutory prohibition must be the cause of any adverse effects on noninfringing uses.⁹⁸² Here, proponents have failed to demonstrate that it would be possible to connect the referenced security devices to other networks even if they were permitted to unlock

⁹⁷⁶ 2015 Recommendation at 158. In 2015 the Register noted evidence that it is not physically possible to switch the carrier for such a device “without destroying your car,” and that, even if it were possible to do so, the OnStar system would not operate because its protocols are engineered to work through a specific carrier. *Id.* at 158–59. Nothing in the record suggests that these conditions have changed.

⁹⁷⁷ ISRI Class 5 Reply at 5–6.

⁹⁷⁸ *Id.* at 4–5; Tr. at 144:15–145:08 (Apr. 23, 2018) (Wiens, iFixit).

⁹⁷⁹ Tr. at 144:22–25 (Apr. 23, 2018) (Wiens, iFixit).

⁹⁸⁰ Tr. at 144:15–145:08 (Apr. 23, 2018) (Wiens, iFixit).

⁹⁸¹ ISRI Class 5 Reply at 4–5.

⁹⁸² *See* Commerce Comm. Report at 37; House Manager’s Report at 6; *see also* Section 1201 Report at 117.

them. In the Revolv example, it is not clear whether any security provider allows its customers to obtain service through a device provided by another company, or whether such providers instead require use of their own hardware. Likewise, there is no indication that providers like Nest Secure and SimpliSafe will provide service using wireless carriers other than those with which they have contractual relationships. In both examples, to the extent the security providers are unwilling or unable to permit the arrangements proponents describe, any adverse effect is the product of those policies or technical limitations, not section 1201.⁹⁸³ Absent any evidence that such transactions *are* possible, proponents cannot establish a likelihood of adverse effects, as such a showing may not be based solely on speculative or hypothetical harms.

Farming equipment. Proponents also suggest that farming equipment should be unlockable, giving examples of connected devices with agricultural uses that can increase productivity and reduce use of natural resources.⁹⁸⁴ Proponents do not, however, offer specific examples of devices that are capable of being unlocked and used on different wireless networks. Instead, they point only to solutions offered directly by network providers such as Verizon, AT&T, and Sierra Wireless.⁹⁸⁵ The websites cited by ISRI indicate that these connected devices may be custom-built by the wireless providers themselves. For example, Sierra Wireless states that it offers “custom tracking devices [built] from scratch,”⁹⁸⁶ and Verizon suggests that its IoT sensors are built with the Verizon network in mind.⁹⁸⁷ To the extent these devices are designed specifically to operate on a particular network, it is unclear whether they are capable of use through other carriers. In some cases, moreover, it appears that the devices are “tightly integrated” with services offered by the providers, further calling into question whether they would function on a different network.⁹⁸⁸ On this record, the Acting Register

⁹⁸³ Commerce Comm. Report at 37 (“Adverse impacts that flow from other sources . . . are outside the scope of the rulemaking.”).

⁹⁸⁴ ISRI Class 5 Initial at 7; ISRI Class 5 Reply at 5.

⁹⁸⁵ See ISRI Class 5 Initial at 7 nn.21–22 (citing links to Verizon and Sierra Wireless pages for asset tracking solutions for agriculture); ISRI Class 5 Reply at 5 (citing reports on Verizon and AT&T agricultural services).

⁹⁸⁶ Benoit Tournier, *Tracking Devices for Livestock Increase Farm Profits*, SIERRA WIRELESS (Oct. 24, 2017), https://www.sierrawireless.com/iot-blog/iot-blog/2017/10/tracking_devices_for_livestock_increase_farm-_profits/.

⁹⁸⁷ *How Verizon’s Internet of Things Technology Can Feed a Food Safety Revolution*, VERIZON (Dec. 13, 2017), <https://www.verizon.com/about/news/how-verizons-internet-things-technology-can-feed-food-safety-revolution> (“You’re talking about a platform that has to scale to literally billions and trillions of transactions. That’s a very good fit for Verizon, because our network accommodates that load. It was built with that in mind for years to come.”).

⁹⁸⁸ Benoit Tournier, *Tracking Devices for Livestock Increase Farm Profits*, SIERRA WIRELESS (Oct. 24, 2017), https://www.sierrawireless.com/iot-blog/iot-blog/2017/10/tracking_devices_for_

cannot find that the prohibition on circumvention is the cause of any adverse effect on users' ability to obtain wireless service for such devices from a different provider.

Automobile GPS trackers. Proponents also offer specific evidence regarding automobile GPS trackers, pointing to devices such as Verizon's Hum service and T-Mobile's SyncUP DRIVE.⁹⁸⁹ These devices plug into a car's On-Board Device ("OBD") port, a standardized port for accessing the vehicle's computer for tasks such as obtaining diagnostic data.⁹⁹⁰ In addition to retrieving information about the car's performance, these vehicle devices include GPS capability and, most relevant to this proceeding, wireless radios allowing for hotspot functionality.⁹⁹¹

Proponents warn that vehicle trackers face similar issues as locked cell phones. They argue that users of a device should not have to purchase a new one for use on a competing compatible network, and that locked devices limit competition by preventing consumers from switching carriers.⁹⁹² As an example, they note that some insurance companies offer lower rates to drivers who install GPS devices in their vehicles to monitor data indicative of driving safety.⁹⁹³ If the driver decides to change insurance companies, proponents posit, an insurer using a different wireless network could

livestock_increase_farm-_profits/ ("Sierra Wireless modules are tightly integrated with our connectivity services and AirVantage IoT platform, which makes it easy to get data to the cloud, so you can develop value added services that help farmers increase their profits."); *see also* M2X, AT&T, <https://m2x.att.com/iot/industry-solutions/iot-data/agriculture/> (last visited Sept. 27, 2018).

⁹⁸⁹ ISRI Class 5 Reply at 6; *see Hum by Verizon*, VERIZON, <https://www.hum.com/products> (last visited Sept. 27, 2018); *SyncUP DRIVE*, T-MOBILE, <https://www.t-mobile.com/offers/syncup> (last visited Sept. 27, 2018) (FAQ explaining that "[f]or security reasons, the SyncUP DRIVE device is locked to the T-Mobile network and only accepts legitimate T-Mobile Micro-Sim cards purchased from T-Mobile or an authorized T-Mobile dealer").

⁹⁹⁰ *See Hum by Verizon*, VERIZON, <https://www.hum.com/products> (last visited Sept. 27, 2018) (Hum "receives diagnostic information from your car's OBD system" and sends alerts); *SyncUP DRIVE*, T-MOBILE, <https://www.t-mobile.com/offers/syncup> (last visited Sept. 27, 2018) (directing owners to plug device into OBD-II port); Tr. at 56:08–25 (Apr. 25, 2018) (Wiens, iFixit) (stating that the OBD port is a "standardized interface" that allows for access of diagnostic information in most cars).

⁹⁹¹ *See Hum by Verizon*, VERIZON, <https://www.hum.com/features/wi-fi-hotspot> (last visited Sept. 27, 2018); Tr. at 167:06–12 (Apr. 23, 2018) (Wiens, iFixit).

⁹⁹² ISRI Class 5 Reply at 6.

⁹⁹³ Tr. at 154:06–18 (Apr. 23, 2017) (Wiens, iFixit).

require purchase of a new device that operates on its preferred network, even if the old device could capture and deliver the same information to the new insurance company.⁹⁹⁴

For the reasons noted above in relation to security systems, the Acting Register concludes that these asserted harms are speculative in nature and therefore are insufficient to demonstrate adverse effects under the statute. At the hearing, Mr. Wiens acknowledged that he is unaware of any instance of an insurance company refusing to allow the use of an alternative device,⁹⁹⁵ and ISRI's evidence of consumer demand in this area relates to child monitoring devices, not automobile trackers.⁹⁹⁶ Moreover, as in the case of the security system examples, the harm described by proponents stems not from section 1201 but from the insurance carrier's requirement that its customers utilize the company's own GPS trackers. An exemption allowing users to unlock trackers provided by their former insurer would have no effect on the new carrier's ability to maintain such a policy. Proponents thus have failed to demonstrate that section 1201 is the cause of their asserted adverse effects with respect to these devices.

In any event, the two specific automobile trackers cited by ISRI appear to be covered under the existing exemption as portable mobile connectivity devices. The Verizon Hum and the T-Mobile SyncUp Drive appear to be portable devices that, in addition to providing GPS tracking, also function as Wi-Fi hotspots.⁹⁹⁷ An expansion of the current exemption accordingly is unnecessary to allow unlocking of those devices or other portable in-vehicle units with the same functionality.⁹⁹⁸

In light of the foregoing, the Acting Register concludes that the statutory factors do not favor an exemption encompassing additional categories of wireless devices. Here, the most relevant factor is the first—the availability for use of copyrighted works. While the Acting Register adheres to the Office's prior conclusion that unlocking can promote the availability of software by extending the useful life of wireless devices, in this class the evidence is insufficient to establish that extending the exemption to the devices cited by proponents is likely to have that effect. As discussed, to the extent those devices are not covered by the current exemption, the evidence does not demonstrate that an exemption would enable users to connect them to different wireless networks. The second factor,

⁹⁹⁴ Tr. at 154:19–26 (Apr. 23, 2017) (Wiens, iFixit).

⁹⁹⁵ Tr. at 155:01–14 (Apr. 23, 2017) (Wiens, iFixit).

⁹⁹⁶ See ISRI Class 5 Reply at 6 n.30.

⁹⁹⁷ See *Hum*^x, VERIZON, <https://www.hum.com/products/hum-x> (last visited Sept. 27, 2018); *SyncUP DRIVE*, T-MOBILE, <https://www.t-mobile.com/offers/syncup> (last visited Sept. 27, 2018).

⁹⁹⁸ These portable in-vehicle devices should be distinguished from hotspots embedded in the vehicle, such as OnStar. As noted, the latter was excluded from the current exemption based on evidence that unlocking could not be accomplished without destroying the vehicle and that there was a lack of desire on the part of consumers to do so. See 2015 Recommendation at 158–59.

the availability for use of works for nonprofit archival, preservation, and educational purposes, and the third factor, the effect on criticism, comment, news reporting, teaching, scholarship and research, have little relevance in this context.⁹⁹⁹ And while the fourth factor ordinarily favors an exemption where, as here, there is no evidence of likely harm to the market for copyrighted works, that factor has little significance to this request given the lack of evidence of adverse effects attributable to the statutory prohibition. Accordingly, and without prejudice to future consideration of this issue upon a different record, the Acting Register concludes that proponents have failed to establish that they are, or are likely to be, adversely affected by section 1201 in their ability to unlock additional categories of wireless devices.

3. NTIA Comments

As it did in 2015, NTIA believes that “proponents have provided sufficient evidence to demonstrate that circumvention of TPMs on all lawfully acquired wireless devices is a noninfringing use.”¹⁰⁰⁰ Specifically, NTIA states that proponents have shown that their proposed uses “are essentially identical” to the uses permitted under the current exemption and that the adverse impacts of the circumvention bar are felt equally by “users of all wireless devices.”¹⁰⁰¹ NTIA finds that the statutory prohibition “limits consumer choice of wireless network providers, limits recyclers’ ability to recycle or resell wireless devices, and limits competition between wireless network providers.”¹⁰⁰² NTIA does not, however, point to specific evidence of such effects in the context of devices beyond those covered by the current exemption. Absent such evidence, the Acting Register cannot recommend an exemption covering all wireless devices.

In reaching its conclusion, NTIA suggests that unlocking devices in situations where the customer does not contract directly with a wireless carrier (as in the case of OnStar) does not threaten copyright infringement and thus does not merit special consideration.¹⁰⁰³ It finds “no evidence that merely allowing the cellular radio in a car to communicate with a different wireless network would result in the user unlawfully obtaining copyrighted material that had only been made available with the initially bundled service (*e.g.*, OnStar maps).”¹⁰⁰⁴ Like the Acting Register, however, NTIA appears to question whether changing wireless providers is possible in these circumstances. It notes, for example, that “if a user is able to unlock an OnStar receiver in a car to direct it to connect

⁹⁹⁹ *See id.* at 167–68.

¹⁰⁰⁰ NTIA Letter at 41.

¹⁰⁰¹ *Id.* at 43.

¹⁰⁰² *Id.*

¹⁰⁰³ *Id.* at 42.

¹⁰⁰⁴ *Id.*

to a different wireless carrier, the user cannot expect that OnStar would continue to provide service to the user.”¹⁰⁰⁵

NTIA echoes the Acting Register’s conclusion that proponents have met their burden with respect to unused devices, pointing to evidence that since 2015, “business practices have changed, resulting in a need for bulk and individual unlocking of new wireless devices.”¹⁰⁰⁶ NTIA proposes replacing the term “used” in the exemption with “lawfully acquired.”¹⁰⁰⁷ The Acting Register agrees that it is appropriate to include that phrase in the regulatory text. Because the regulations implementing the Unlocking Act already require that circumvention under this exemption be initiated by the “owner” of the relevant device or by a person or service provider at the direction of the owner, the Acting Register views this as a technical, rather than a substantive, change.¹⁰⁰⁸

4. Conclusion and Recommendation

Proponents have met their burden to show that the statutory prohibition is likely to cause adverse effects on the ability to unlock unused cellphones, tablets, mobile connectivity devices, and wearables. The Acting Register therefore recommends expanding the current exemption by eliminating the requirement that a device be “used.” Proponents have not, however, carried their burden to demonstrate adverse effects with respect to other types of mobile devices, and therefore the Acting Register does not recommend removal of the exemption’s enumerated device categories.

The Acting Register accordingly recommends that the Librarian designate the following class:

Computer programs that enable the following types of lawfully acquired wireless devices to connect to a wireless telecommunications network, when circumvention is undertaken solely in order to connect to a wireless telecommunications network and such connection is authorized by the operator of such network:

- (i) Wireless telephone handsets (i.e., cellphones);**
- (ii) All-purpose tablet computers;**
- (iii) Portable mobile connectivity devices, such as mobile hotspots, removable wireless broadband modems, and similar devices; and**

¹⁰⁰⁵ *Id.*

¹⁰⁰⁶ *Id.* at 42–43 (citing record showing recyclers increasingly receive new devices).

¹⁰⁰⁷ *Id.*

¹⁰⁰⁸ *See* 37 C.F.R. § 201.40(c) (2016).

(iv) **Wearable wireless devices designed to be worn on the body, such as smartwatches or fitness devices.**

F. Proposed Class 6: Computer Programs—Jailbreaking

1. Background

a. Summary of Proposed Exemption

Proposed Class 6 would expand an existing exemption for activity known as “jailbreaking”; that is, “the process of gaining access to the operating system of a computing device . . . to install and execute software that could not otherwise be installed or run on that device, or to remove pre-installed software that could not otherwise be uninstalled.”¹⁰⁰⁹ As noted above, the 2015 rulemaking adopted an exemption permitting the jailbreaking of smartphones, “portable all-purpose mobile computing devices.”¹⁰¹⁰ In this proceeding, EFF filed a petition seeking to expand the current exemption in two respects. First, EFF proposes adding voice assistant devices such as the Amazon Echo and Google Home to the categories of devices covered by the exemption. Second, it requests language expressly allowing jailbreaking not only to install, run, or remove software, but also for the purpose of enabling or disabling hardware features of the relevant device.

Specifically, EFF’s petition proposed replacing “portable all-purpose mobile computing devices” with “general-purpose portable computing devices,” and defining that term as “a portable device that is primarily designed or primarily used to run a wide variety of programs rather than for consumption of a particular type of media content, is equipped with an operating system primarily designed for use in a general-purpose computing device, and is primarily designed to be carried or worn by an individual or used in a home.”¹⁰¹¹ Consumers Union, FSF, Keeon Jung, and SaurikIT each filed brief comments in support of the petition.

EFF’s subsequent supporting comments, which were joined by ORI and the Association of Service and Computer Dealers International, Inc. (“ASCDI”) (collectively, “EFF/ORI/ASCDI”) narrowed the proposed regulatory language. In lieu of a “general-purpose portable computing devices” category, proponents now seek to expand the exemption only to “voice assistant devices,” which they define as “a device that is primarily designed to run a wide variety of programs rather than for consumption of a particular type of media content, is designed to take user input primarily by voice, and

¹⁰⁰⁹ 2015 Recommendation at 172 (citations omitted).

¹⁰¹⁰ 37 C.F.R. § 201.40(b)(4) (2016).

¹⁰¹¹ EFF Class 6 Pet. at 2.

is designed to be installed in a home or office.”¹⁰¹² Thus, proponents’ requested language is as follows, with proposed additions indicated in bold:

Computer programs that enable smartphones, **voice assistant devices**, and portable all-purpose mobile computing devices to execute lawfully obtained software applications, where circumvention is accomplished **solely for one or more of the following purposes:** enabling interoperability of such applications with computer programs on the smartphone or device, or to permit removal of software from the smartphone or device, **or to enable or disable hardware features of the smartphone or device.** For purposes of this exemption, a “portable all-purpose mobile computing device” is a device that is primarily designed to run a wide variety of programs rather than for consumption of a particular type of media content, is equipped with an operating system primarily designed for mobile use, and is intended to be carried or worn by an individual. **A “voice assistant device” is a device that is primarily designed to run a wide variety of programs rather than for consumption of a particular type of media content, is designed to take user input primarily by voice, and is designed to be installed in a home or office.**¹⁰¹³

b. Overview of Issues

Proponents seek to gain access to the computer programs within voice assistant devices that are used to “start up the device, control the hardware, and allow the running of other programs.”¹⁰¹⁴ Such programs are variously referred to as “firmware, operating systems, and bootloaders.”¹⁰¹⁵ Proponents offer a number of reasons for seeking such access. First, they contend that access will enable owners of voice assistant devices to improve the device’s functionality—for example, by installing applications developed by third parties or by fixing security vulnerabilities that the manufacturer has yet to address.¹⁰¹⁶ Second, they argue that jailbreaking would give users greater control over their privacy. Noting that voice assistant devices “are designed to transmit audio commands over the Internet to the manufacturer’s servers for interpretation,” and may also transmit sensitive data from connected devices, proponents seek the ability to install firewall software to prevent such transmissions, as well as the ability to control the operation of particular applications or hardware features such as the microphone or

¹⁰¹² EFF, ORI & ASCDI Class 6 Initial at 2.

¹⁰¹³ *Id.*

¹⁰¹⁴ *Id.* at 6.

¹⁰¹⁵ *Id.*

¹⁰¹⁶ *Id.* at 13–14.

camera.¹⁰¹⁷ Finally, proponents argue that jailbreaking will enable users to continue using voice assistant devices even if the manufacturer discontinues server support, thereby extending the useful life of such devices and mitigating the environmental impact of electronics waste.¹⁰¹⁸

Proponents assert that gaining such access requires circumvention of TPMs contained in the device firmware. They note that most voice assistant devices, including the Amazon Echo and Google Home, run variants of the GNU/Linux operating system, which “contains access controls that can be configured to restrict access to nearly any of a device’s functions, including the ability to add or remove software from a device.”¹⁰¹⁹ Neither Amazon nor Google, they contend, grant such access, and therefore “obtaining it requires modifying or replacing the access controls on the device.”¹⁰²⁰ The Apple HomePod runs the iOS operating system, which “contains cryptographic verification that prevents any application from running on a device unless it bears a digital signature from Apple.”¹⁰²¹ The system also “contains cryptographic checks at various levels of the software stack that prevent modification or replacement of the operating system itself.”¹⁰²²

Class 6 was opposed by the ACT | The App Association (“ACT”), ESA, and Joint Creators II and the Recording Industry Association of America (“RIAA”) testified in opposition of the proposed class. Opponents argue that jailbreaking of voice assistant devices will contribute to piracy by enabling users to gain unauthorized access to subscription-based streaming content, as well as by enabling the installation of counterfeit apps or apps offering infringing content.¹⁰²³ In opponents’ view, jailbreaking a voice assistant device carries a greater risk of these harms than exists in the context of the devices covered by the current exemption.

2. Discussion

a. Scope of the Proposed Class

The Acting Register first addresses two related issues concerning the scope of the request. First, Joint Creators II argue that the exemption requested in the supporting comments of EFF, ORI, and ASCDI should be denied as untimely because it differs from

¹⁰¹⁷ *Id.* at 14.

¹⁰¹⁸ *Id.* at 14–15.

¹⁰¹⁹ *Id.* at 6.

¹⁰²⁰ *Id.* at 6–7.

¹⁰²¹ *Id.* at 7.

¹⁰²² *Id.*

¹⁰²³ *See, e.g.,* ACT Class 6 Opp’n at 5.

the request in EFF's petition and was submitted after the petition deadline of September 13, 2017. Joint Creators II note that EFF's petition sought an exemption for "general-purpose *portable* computing devices,"¹⁰²⁴ while the supporting comments seek to cover (in Joint Creators II's language) "non-portable, in-home or in-office, voice assistants."¹⁰²⁵ EFF responded that it was clear from its petition that voice assistant devices were included; indeed, the petition listed "the Amazon Echo series of products, the Google Home, and the forthcoming Apple HomePod" as examples of devices to be covered.¹⁰²⁶ Further, EFF contends that it provided "more focused regulatory language" in its comments in response to the NPRM's request for examples of specific types of devices that would be encompassed by the proposed exemption.¹⁰²⁷

The Acting Register concludes that proponents' request was timely filed. The Office's petition request form states that "[p]etitioners need not propose precise regulatory language or fully define the contours of an exemption class" and that "a short, plain statement describing the nature of the activities the petitioners wish to engage in will be sufficient."¹⁰²⁸ As proponents note, EFF's petition made clear that the proposed exemption was intended to include the most well-known examples of voice assistant devices. The proposed regulatory language in proponents' subsequent comments is consistent with that statement; in fact, the latter language is *narrower* than that of the petition, which would have covered not just voice assistant devices but other "general purpose portable computing devices," including by changing the type of operating systems relevant to the exemption.¹⁰²⁹ Therefore, opponents have not been prejudiced by the change in proponents' language, and the Acting Register accordingly will consider the proposal as reflected in the comments.

Second, some opponents contend that proponents' definition of "voice assistant device" is overbroad. As noted, the proposed exemption defines that term as "a device that is primarily designed to run a wide variety of programs rather than for consumption of a particular type of media content, is designed to take user input primarily by voice, and is designed to be installed in a home or office."¹⁰³⁰ Joint Creators II argue that this definition could sweep in devices such as television set-top boxes and Blu-ray players, many of which "are capable of being operated by voice and access multiple forms of

¹⁰²⁴ EFF Class 6 Pet. at 2 (emphasis added).

¹⁰²⁵ Joint Creators II Class 6 Opp'n at 4.

¹⁰²⁶ EFF Class 6 Reply at 2 (quoting EFF Class 6 Pet. at 3).

¹⁰²⁷ *Id.* at 3.

¹⁰²⁸ EFF Class 6 Pet. at 2.

¹⁰²⁹ *Id.*; see also ESA Class 6 Opp'n at 2 (stating that supporting comments "propos[e] narrower regulatory language" than that proposed in petition).

¹⁰³⁰ EFF, ORI & ASCDI Class 6 Initial at 2.

content.”¹⁰³¹ ACT similarly contends that the definition “could essentially include any home computing device operated by voice commands.”¹⁰³² Proponents respond that they are not seeking to extend the exemption beyond voice assistant devices. They argue that their definition excludes set-top boxes, digital video recorders, universal remote controls, and video game consoles on the ground that those devices “are all fully functional *without* using voice commands,” as well as the fact that none of them are “designed to run a wide variety of software applications apart from media viewing.”¹⁰³³

Based on proponents’ statements, the Acting Register understands the proposed expansion to exclude the devices cited by opponents. The analysis below accordingly will consider whether the jailbreaking of this narrower category of voice assistant device qualifies for an exemption under section 1201. If that question is resolved in the affirmative, the Acting Register will consider whether proponents’ suggested definition appropriately describes the scope of the class or whether alternative regulatory language is warranted.

b. Works Protected by Copyright

In recommending the current exemption, the Register recognized that the operating systems in smartphones and portable all-purpose mobile computing devices constitute computer programs within the meaning of the Copyright Act.¹⁰³⁴ The same conclusion applies to the firmware in voice assistant devices.¹⁰³⁵ Therefore, the Acting Register finds that at least some works included in the proposed expansion of the class are protected by copyright.

c. Asserted Noninfringing Uses

Proponents note that “[j]ailbreaking involves modifying the firmware on one’s device, potentially creating a derivative work”¹⁰³⁶—a *prima facie* infringement of the copyright owner’s exclusive right to prepare derivative works under section 106(2) of the

¹⁰³¹ Joint Creators II Class 6 Opp’n at 10.

¹⁰³² ACT Class 6 Opp’n at 4.

¹⁰³³ EFF Class 6 Reply at 4.

¹⁰³⁴ See 2015 Recommendation at 172 n.1077 (“Although the terms ‘firmware’ and ‘software’ are variously used throughout the Recommendation, both are considered computer programs within the meaning of the Copyright Act.” (citing 17 U.S.C. § 101 (definition of “computer program”))).

¹⁰³⁵ See EFF, ORI & ASCDI Class 6 Initial at 4 (“Voice assistants from Amazon and Google run variants of the GNU/Linux operating system, the same operating system that runs on billions of other Internet-connected devices and forms the basis of the Android operating system for mobile devices. The Apple HomePod runs iOS, the same operating system that runs on iPhone and iPad devices.”).

¹⁰³⁶ *Id.* at 8.

Copyright Act. They argue, however, that such activity is noninfringing under the fair use doctrine, and that each of the factors weighs in favor of the exemption.¹⁰³⁷ In proponents' view, the fair use analysis relied upon by the Register in recommending the previous jailbreaking exemptions is equally applicable in the context of voice assistant devices. Opponents do not directly contest these fair use arguments, but the Acting Register must assess them regardless.

Proponents do not provide a separate fair use analysis for the second aspect of their request, which seeks to add language expressly permitting circumvention for purposes of enabling or disabling hardware features of the relevant device. Proponents describe this request as merely a clarification of the existing exemption language, contending that "the ability to enable or disable hardware features is inherent in the ability to install or remove software."¹⁰³⁸ They do not provide further elaboration, however, and Joint Creators II do not appear to concede that such activity is currently covered.¹⁰³⁹ Given the lack of evidence or analysis in the record, the Acting Register declines to opine on the question whether this request is properly considered a clarification compared to an expansion of the current exemption. Without more information about the specific nature of the activity, the Acting Register cannot determine whether it requires a different fair use analysis from that applicable to jailbreaking as defined under the current exemption. The analysis below accordingly is limited to the question of whether circumvention of the access controls on voice assistant devices for the purposes provided in the current exemption is likely to be a fair use.

With respect to the first fair use factor, EFF/ORI/ASCDI argue that the purpose and character of jailbreaking favor their proposal because "the analysis and modification of the functional aspects of software" to make it interoperable with other programs is a favored purpose under applicable precedent.¹⁰⁴⁰ They rely on the Ninth Circuit's decisions in *Sega Enterprises Ltd. v. Accolade, Inc.* and *Sony Computer Entertainment, Inc. v. Connectix Corp.*, which held that reverse engineering video game systems to facilitate the

¹⁰³⁷ *Id.* at 8–13. Despite its potential relevance, proponents did not rely on section 117, which permits the owner of a copy of a computer program to reproduce and adapt the program in certain circumstances, as a basis for noninfringing use.

¹⁰³⁸ *Id.* at 2; *see also* Tr. at 93:20–94:09 (Apr. 12, 2018) (Stoltz, EFF).

¹⁰³⁹ *See* Joint Creators II Class 6 Opp'n at 3 n.2 ("Without more information, the Joint Creators and Copyright Owners cannot determine whether to oppose this expansion."); Tr. at 96:19–24 (Apr. 12, 2018) (Williams, Joint Creators II); *see also* Tr. at 99:07–12 (Apr. 12, 2018) (Hughes, RIAA) ("In these devices, it sounds to me that if one of their purposes is to start to turn off hardware features, then my concern would be that there's going to be some unintended consequence whereby suddenly music that was licensed for an end-to-end secure distribution is no longer secure.").

¹⁰⁴⁰ EFF, ORI & ASCDI Class 6 Initial at 8.

creation of interoperable third-party software was a fair use.¹⁰⁴¹ Proponents also point to the Register’s prior determination that the goal of jailbreaking—“to allow the operating system on a device to interact with other programs”—is “a favored purpose under the law,”¹⁰⁴² as well as the Register’s finding that the legislative history of section 1201 “expresse[s] a commitment to permit and encourage interoperability.”¹⁰⁴³

Proponents further argue that jailbreaking is a transformative, noncommercial use. Citing *Connectix*, they contend that “[c]opying and modification of software to render it compatible with other, independently created software has been held to be a transformative purpose.”¹⁰⁴⁴ Proponents assert that jailbreaking is noncommercial because those who jailbreak “do not do so for profit, but to enhance, personalize, and secure their devices,” and that that jailbreaking “promotes additional creativity and expands access to knowledge by encouraging more software development and expanded functionality.”¹⁰⁴⁵

The Acting Register agrees with proponents that this factor favors fair use. As proponents note, previous Registers have concluded that enabling a device’s operating system to interoperate with other programs is a favored purpose under the first fair use factor.¹⁰⁴⁶ Indeed, the Acting Register notes the long history of exemptions for jailbreaking granted in prior rulemakings. Nothing in the record suggests that jailbreaking a voice assistant device is materially different in purpose and character from jailbreaking those other types of devices. Similarly, with respect to proponents’ contention that jailbreaking is transformative, the Register previously found that question unnecessary to a determination that the first factor favors fair use. In 2015 the Register noted that even if jailbreaking is not considered transformative, “the first factor may nonetheless favor fair use where, as here, the purpose and character of the use is ‘noncommercial and personal’ and enhances functionality.”¹⁰⁴⁷ The same conclusion applies to the jailbreaking of voice assistant devices.¹⁰⁴⁸

¹⁰⁴¹ *Id.* (citing *Sega*, 977 F.2d at 1514, and *Connectix*, 203 F.3d at 598–99).

¹⁰⁴² *Id.* at 9 (quoting 2015 Recommendation at 188).

¹⁰⁴³ *Id.* (quoting 2010 Recommendation at 92).

¹⁰⁴⁴ *Id.* at 10 (citing *Connectix*, 203 F.3d at 606–07).

¹⁰⁴⁵ *Id.*

¹⁰⁴⁶ See 2015 Recommendation at 188; see also 2012 Recommendation at 72; 2010 Recommendation at 93–95.

¹⁰⁴⁷ 2015 Recommendation at 188; see also 2012 Recommendation at 72; 2010 Recommendation at 93.

¹⁰⁴⁸ At the hearing, counsel for Joint Creators II suggested that the Office’s prior analysis under this factor should change in light of the Federal Circuit’s decision in *Oracle Am., Inc. v. Google LLC*, 886 F.3d 1179 (Fed. Cir. 2018), which was issued after the close of the written comment period.

Finally, the Acting Register believes it significant that proponents seek to jailbreak voice assistant devices for the additional purpose of safeguarding personal privacy. Section 1201(i) provides a permanent exemption that permits circumvention for the “sole” purpose and effect of disabling technology that collects or disseminates personally identifying information.¹⁰⁴⁹ While proponents’ requested exemption is not fully covered by the 1201(i), section 1201(i) reflects Congress’s recognition that the protection of privacy is a purpose for which circumvention may be warranted under appropriate circumstances.¹⁰⁵⁰ The Acting Register finds that this consideration further tips the first factor in favor of fair use.¹⁰⁵¹

As to the second factor, proponents rely on the Ninth Circuit’s holdings in *Sega* and *Connectix* for the proposition that the nature of the work favors fair use where the copying of software is necessary to understand its functional aspects.¹⁰⁵² They also note

See Tr. at 157:16–159:21 (Apr. 12, 2018) (Williams, Joint Creators II). In *Oracle*, the court held that Google’s use of Oracle’s application programming interface packages to develop a software platform for mobile devices was not transformative. *Oracle*, 886 F.3d at 1199. The court distinguished *Connectix*, where the court found the copying of software code to create a compatible product with new code to be “modestly transformative.” *Id.* at 1200 (citing *Connectix*, 203 F.3d at 606–07). In contrast, the *Oracle* court found that Google copied the code verbatim to attract programmers to a “new and incompatible platform.” *Id.* (internal quotation marks and citation omitted). Counsel for Joint Creators II argued that jailbreaking more closely resembles the latter activity because the copied firmware is used for substantially the same purpose for which it was designed. Tr. at 158:20–159:07 (Apr. 12, 2018) (Williams, Joint Creators II). Regardless, however, the Office’s analysis does not require a finding that jailbreaking is transformative in these circumstances. *See* 2015 Recommendation at 188 (“Even if this use is not considered transformative in nature—because the computer program is still being used for its intended purpose—that is not in and of itself a basis to reject a fair use claim.”).

¹⁰⁴⁹ 17 U.S.C. § 1201(i).

¹⁰⁵⁰ *Id.* § 1201(i)(1); *see also* Tr. at 94:19–21 (Apr. 12, 2018) (Stoltz) (opining that section 1201(i) would not cover all aspects of proposed exemption); Tr. at 112:03–14 (Apr. 12, 2018) (Freeman, SaurikIT) (similar).

¹⁰⁵¹ The Acting Register notes that voice assistant devices recently have been the subject of privacy-related concerns. *See, e.g.*, Letter from U.S. Senators Jeff Flake & Christopher A. Coons to Jeff Bezos, Chief Executive Officer, Amazon, Inc. (June 11, 2018), https://www.flake.senate.gov/public/_cache/files/ef175bd4-d6b4-46eb-9014-bb8942420a63/06.12.18-flake-coons-amazon-letter.pdf (requesting information on privacy and data-security issues concerning Amazon Echo); Laurel Wamsley, *Amazon Echo Recorded and Sent Couple’s Conversation—All Without Their Knowledge*, NPR (May 25, 2018), <https://www.npr.org/sections/thetwo-way/2018/05/25/614470096/amazon-echo-recorded-and-sent-couples-conversation-all-without-their-knowledge>.

¹⁰⁵² EFF, ORI & ASCDI Class 6 Initial at 10 & n.56 (citing *Sega*, 977 F.2d at 1526, and *Connectix*, 203 F.3d at 605).

that in considering the jailbreaking exemptions requested in prior rulemakings, the Register has consistently concluded that this factor favors fair use on the ground that firmware is largely functional in nature.¹⁰⁵³

For substantially the same reasons cited in reference to those exemptions, the Acting Register concludes that the nature of the software at issue weighs in favor of fair use. The record evidence indicates that the firmware in voice assistant devices serves primarily to “start up the device, control the hardware, and allow the running of other programs”¹⁰⁵⁴—the same functions as the firmware in the smartphones and other devices covered by the existing exemption. Indeed, the record indicates that voice assistant devices run either the same firmware as is used in those devices or a variant of such firmware.¹⁰⁵⁵ Because these programs are “largely functional, rather than expressive, in nature,”¹⁰⁵⁶ the second factor favors fair use.

Proponents argue that the third factor requires only that “[t]he amount taken . . . be ‘reasonable’ and for a legitimate purpose,” and that “the amount of code copied in the course of a jailbreak” satisfies that standard.¹⁰⁵⁷ Proponents acknowledge that “the amount of code that must be copied and modified varies depending on the device and firmware,” but they cite case law in which copying works in their entirety was deemed “necessary to achieving a favored purpose.”¹⁰⁵⁸ Moreover, they argue, “[i]n most cases, the portion of the firmware that must be permanently modified to accomplish a jailbreak is a very small proportion of the overall code.”¹⁰⁵⁹ Proponents accordingly maintain that the third factor either “favors fair use, or is neutral.”¹⁰⁶⁰

In each of the past three rulemakings, the Register found that this factor has limited significance in the context of jailbreaking.¹⁰⁶¹ Most recently, the Register concluded that “while jailbreaking often requires making a complete reproduction of the firmware, in

¹⁰⁵³ *Id.* at 10–11 (citing 2015 Recommendation at 188, 2012 Recommendation at 73, and 2010 Recommendation at 96).

¹⁰⁵⁴ *Id.* at 6.

¹⁰⁵⁵ *Id.* at 6–7.

¹⁰⁵⁶ 2015 Recommendation at 188–89.

¹⁰⁵⁷ EFF, ORI & ASCDI Class 6 Initial at 11–12 (quoting *Campbell*, 510 U.S. at 586).

¹⁰⁵⁸ *Id.* at 11 (citing *Sega*, 977 F.2d at 1526, *Connectix*, 203 F.3d at 605–06, *Kelly v. Arriba Soft Corp.*, 336 F.3d 811, 820–21 (9th Cir. 2001), *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146, 1167–68 (9th Cir. 2007), and *Google Books*, 804 F.3d at 221–22).

¹⁰⁵⁹ EFF, ORI & ASCDI Class 6 Initial at 11.

¹⁰⁶⁰ *Id.* at 12.

¹⁰⁶¹ *See* 2015 Recommendation at 188–89; 2012 Recommendation at 74; 2010 Recommendation at 97.

light of the *de minimis* nature of the modifications ultimately made to the firmware to enable jailbreaking, this factor, while not favorable to fair use, is of limited relevance.”¹⁰⁶² Nothing in the current record suggests that the analysis should differ with respect to voice assistant devices, and therefore the Acting Register reaches the same conclusion.

In considering the fourth factor, proponents argue that jailbreaking of voice assistant devices does not harm the market for the sale of device firmware because the firmware “is sold along with the devices themselves, not separately.”¹⁰⁶³ Noting that “[f]irmware upgrades are not sold, but are made available to device owners as a free download,” they contend that “jailbreaking does not cause any proliferation of infringing copies, nor replace any sales.”¹⁰⁶⁴ Proponents additionally contend that “[j]ailbreaking has not harmed sales of other devices.”¹⁰⁶⁵

On this factor as well, the Acting Register adheres to the analysis from prior rulemakings. In 2010, 2012, and 2015, the Register found no evidence that jailbreaking was likely to displace sales of the firmware in the devices at issue.¹⁰⁶⁶ In fact, in the two most recent rulemakings, the Register noted evidence that sales of smartphones had increased during the period in which the jailbreaking exemption for such devices was in effect.¹⁰⁶⁷ The evidence in this proceeding indicates a similar trend for smartphones.¹⁰⁶⁸ Moreover, nothing in the record suggests that there has been any harm to the market for the firmware in portable all-purpose mobile computing devices since the jailbreaking exemption for those devices took effect in 2015. Nor is there any basis to conclude that a different result would obtain if the exemption were extended to voice assistant devices. The Acting Register accordingly concludes that this factor favors fair use.¹⁰⁶⁹

Based on the foregoing analysis, the Acting Register finds that proponents have met their burden of showing that jailbreaking voice assistant devices within the meaning of the current exemption is likely to be a fair use.

¹⁰⁶² 2015 Recommendation at 188–89.

¹⁰⁶³ EFF, ORI & ASCDI Class 6 Initial at 12.

¹⁰⁶⁴ *Id.*

¹⁰⁶⁵ *Id.*

¹⁰⁶⁶ 2015 Recommendation at 189; 2012 Recommendation at 74; 2010 Recommendation at 97–100.

¹⁰⁶⁷ 2015 Recommendation at 189; 2012 Recommendation at 74.

¹⁰⁶⁸ See EFF, ORI & ASCDI Class 6 Initial at 12 n.79.

¹⁰⁶⁹ Opponents argue that jailbreaking may give rise to piracy of creative content transmitted to voice assistant devices, such as music streamed via a subscription-based service. See ACT Class 6 Opp’n at 4–6; Joint Creators II Class 6 Opp’n at 11–13. This concern does not go to the effect of the copying or alteration of the device firmware on the market for or value of that work. Therefore, the Acting Register addresses it below in her analysis of the fourth statutory factor under section 1201(a)(1)(C).

d. Causation

The Acting Register finds that proponents have met their burden of showing that the statutory prohibition on circumvention of access controls limits their ability to engage in jailbreaking of voice assistant devices. But for the prohibition, users likely could gain lawful access to the copyrighted firmware for that purpose.¹⁰⁷⁰

e. Asserted Adverse Effects

Regarding the first statutory factor, EFF/ORI/ASCDI argue that a jailbreaking exemption “will have either no effect or a positive effect on the availability of copyrighted firmware and application software.”¹⁰⁷¹ They point to the Register’s prior conclusion that jailbreaking likely would increase the availability of applications for smartphones and likely would not interfere with the availability of smartphone operating systems or other works created for wireless communications devices.¹⁰⁷² In proponents’ view, the same conclusion should apply here. Proponents further contend that jailbreaking voice assistant devices will not contribute to infringement of copyrighted entertainment media streamed to such devices, such as content from music streaming services, because any digital rights management (“DRM”) protecting such streams is separate from the access controls in the bootloader and operating system.¹⁰⁷³

Opponents challenge the contention that jailbreaking is necessary to promote the development of new applications. Joint Creators II note that Amazon and Google “already allow independent app development for voice assistants” and reports suggest that Apple will do so in the future.¹⁰⁷⁴ ACT argues that circumvention is unnecessary given the availability of “low-cost, open source hardware available for programming.”¹⁰⁷⁵ Citing Raspberry Pi and Arduino as examples, ACT contends that

¹⁰⁷⁰ See EFF, ORI & ASCDI Class 6 Initial at 6–7 (stating that obtaining access to firmware on Amazon Echo and Google Home “requires modifying or replacing the access controls on the device” and that Apple HomePod contains cryptographic verification preventing running of non-approved applications and cryptographic checks preventing modification or replacement of the operating system); EFF Class 6 Reply at 7 (“Jailbreaking is . . . the *only* way to add non-Apple software to a HomePod.”).

¹⁰⁷¹ EFF, ORI & ASCDI Class 6 Initial at 15.

¹⁰⁷² *Id.* (citing 2010 Recommendation at 102).

¹⁰⁷³ *Id.*

¹⁰⁷⁴ Joint Creators II Class 6 Opp’n at 14.

¹⁰⁷⁵ ACT Class 6 Opp’n at 3.

these platforms “enable users to create personalized home automation with voice assistant devices” without the need to circumvent access controls.¹⁰⁷⁶

In response, proponents dispute that these options provide adequate alternatives to circumvention. First, EFF notes that one of the uses in which users seek to engage is the alteration of the firmware “to selectively *limit* [the device’s] functionality, such as by limiting the reach of the always-on voice recognition, the various wireless interfaces, and the transmission of very personal data.”¹⁰⁷⁷ It argues that such modifications “require adding software to the device itself, and cannot be accomplished through ‘Alexa Skills’ and similar third-party functionality that resides largely on the manufacturer’s servers.”¹⁰⁷⁸

Second, with respect to the installation of third-party apps, EFF notes that the Register previously rejected the argument that the Android platform’s relative openness to such software renders jailbreaking unnecessary.¹⁰⁷⁹ Further, they emphasize that the Apple HomePod does not currently permit the installation of third-party apps, arguing that “speculation about whether Apple might change its policy in the future does not obviate the need for an exemption now.”¹⁰⁸⁰ As to the electronics platforms cited by ACT, EFF contends that they do not provide an adequate substitute because “[b]uilding a device from scratch to approximate the functionality of a voice assistant” would require significant amounts of hardware, assembly, and programming, the costs of which are “likely to be more than the retail price of a mass-produced voice assistant device.”¹⁰⁸¹

The Acting Register finds that this factor favors the requested exemption. As the Register concluded in the past three rulemakings, “access controls prevent consumers from using third-party applications, so denying a jailbreaking exemption would significantly diminish the availability of those works. At the same time, granting the exemption is unlikely to discourage use or development of devices or the copyrighted firmware needed to run them.”¹⁰⁸²

The Acting Register concludes that this potential diminished availability of copyrighted works would not be adequately offset by the alternatives to circumvention cited by

¹⁰⁷⁶ *Id.*; see also Tr. at 155:06–156:19, Hearing Ex. 6-B, (Apr. 12, 2018) (Zuck, ACT) (discussing photographs of DYI device).

¹⁰⁷⁷ EFF Class 6 Reply at 7.

¹⁰⁷⁸ *Id.*

¹⁰⁷⁹ *Id.* (citing 2015 Recommendation at 190).

¹⁰⁸⁰ *Id.*

¹⁰⁸¹ *Id.* at 7–8.

¹⁰⁸² 2015 Recommendation at 190 (citing 2012 Recommendation at 76, and 2010 Recommendation at 101).

opponents. Opponents do not dispute proponents' assertion that limiting device functions cannot be accomplished using manufacturer-provided functionality.¹⁰⁸³ Moreover, although the record indicates that Amazon and Google allow the installation of third-party apps on their voice assistant devices, opponents do not dispute that Apple has yet to do so on its HomePod. Absent an exemption, therefore, users in at least that segment of the market would be prevented from installing such apps. Nor do the hardware platforms cited by ACT provide a realistic and sufficient alternative. While section 1201's legislative history cautions against finding an adverse impact on the basis of "mere inconveniences," the costs and burdens associated with building an entirely separate device on which to run third-party apps would far exceed that standard.¹⁰⁸⁴

The Acting Register does not, however, find that granting the second component of proponents' request—the addition of language expressly permitting circumvention “to enable or disable hardware features of the smartphone or device”—would increase the availability for use of copyrighted works. As explained above, the record lacks sufficient information about the nature those activities to permit a determination of whether they are outside the scope of the current exemption. At any rate, proponents did not offer evidence suggesting that the absence of such language has caused confusion or has otherwise adversely affected those seeking to jailbreak under the current exemption, stating only “because of the importance of this ability, particularly to protect user privacy and security, we request that the Office recommend including that purpose explicitly in the exemption.”¹⁰⁸⁵ Thus, there is no basis to conclude that the requested addition would promote the availability for use of copyrighted works.

Finally, although the parties did not raise this issue, the Acting Register notes that there is a plausible argument that the permanent exemption for reverse engineering under section 1201(f) already permits this activity and thus diminishes the favorability of this statutory factor. The Copyright Office's recent policy study on section 1201 concluded that section 1201(f) “may . . . allow jailbreaking smartphones, for example, ‘in order to make the operating system on that phone interoperable with an independently created application . . . [when] the modifications . . . are made purely for the purpose of such interoperability.’”¹⁰⁸⁶ Assuming that construction is correct, it could be argued that a jailbreaking exemption is unnecessary to promote the availability for use of copyrighted works because jailbreaking is already permitted under section 1201(f). The report noted,

¹⁰⁸³ *Cf. id.* (“Although Android is a somewhat more open platform than Apple's iOS in terms of the applications it will allow . . . it may not be possible to uninstall applications” without jailbreaking.)

¹⁰⁸⁴ House Manager's Report at 6; *see also* Section 1201 Report at 122 (noting that “alternatives to circumvention should be realistic and not merely theoretical”).

¹⁰⁸⁵ EFF, ORI & ASCDI Class 6 Initial at 17.

¹⁰⁸⁶ Section 1201 Report at 70 n.377 (quoting 2010 Recommendation at 100 (citations omitted)).

however, that the Office would continue to recommend granting exemptions otherwise meeting the statutory standard “in cases where there may be reasonable disagreement as to whether section 1201(f) applies.”¹⁰⁸⁷ Previous Registers recognized that section 1201(f) does not unambiguously authorize jailbreaking by end users,¹⁰⁸⁸ and the Acting Register notes the general dearth of case law on that question. Therefore, while the Office continues to believe that section 1201(f) is properly construed to accommodate certain jailbreaking activities, the Acting Register will not alter her analysis of the first statutory factor on this basis.

As to the second statutory factor, proponents argue that the availability of firmware for nonprofit archival, preservation, and educational purposes “will not be harmed” and that this factor might even favor an exemption because “[j]ailbreaking a voice assistant [device] could enable the device to be used for capturing and preserving an audio record under the control of the device owner, with voice control over the recording functions.”¹⁰⁸⁹ They do not, however, elaborate on that potential use.

In the three previous rulemakings, the Register found that this factor is not directly implicated by the jailbreaking exemptions,¹⁰⁹⁰ and the Acting Register reaches the same conclusion here. Proponents’ one-sentence reference to the possible preservation of audio records does not tip this factor in favor of an exemption because it is speculative and unsupported by the record. This factor accordingly is neutral.

For the third factor—the impact on criticism, comment, news reporting, teaching, scholarship, or research—proponents contend that this exemption will enable users to install, use, study, and comment upon software that otherwise could not be installed on voice assistant devices due to manufacturer-imposed content restrictions. As an example, they note that Apple will not approve apps for sale in its App Store if they contain “content that is offensive, insensitive, upsetting, intended to disgust, or in exceptionally poor taste,” meaning that jailbreaking is required to install such apps on iOS devices.¹⁰⁹¹

The Acting Register finds that this factor somewhat favors the requested exemption, insofar as it may allow users to research and comment upon new software applications

¹⁰⁸⁷ *Id.*

¹⁰⁸⁸ See 2015 Recommendation at 181 n.1159; 2012 Recommendation at 71; 2010 Recommendation at 84–85.

¹⁰⁸⁹ EFF, ORI & ASCDI Class 6 Initial at 16.

¹⁰⁹⁰ 2015 Recommendation at 190; 2012 Recommendation at 77; 2010 Recommendation at 101.

¹⁰⁹¹ EFF, ORI & ASCDI Class 6 Initial at 16. Proponents also assert that manufacturers have made certain apps unavailable in foreign countries at the request of those countries’ governments, *see id.*, but they do not explain how an exemption under U.S. law would address that issue.

that would otherwise be excluded from use on voice assistant devices. Moreover, as was true in the 2015 rulemaking, “the current record suggests that jailbreaking may help further research of security flaws by allowing users to access a device’s ‘lower-level functionality’ to detect vulnerabilities.”¹⁰⁹²

As to the fourth factor, proponents contend that an expanded jailbreaking exemption would have no adverse impact on the market for the firmware on voice assistant devices for the same reasons cited in their argument under the fourth fair use factor. In fact, they argue, “the proposed expansion is likely to stimulate the market for such works by permitting developers to create new applications for the devices[,] . . . thus making these devices—together with their copyrighted firmware—more attractive to consumers.”¹⁰⁹³

But opponents’ argument under this factor—indeed, their principal argument against the expansion as a whole—is that jailbreaking is likely to enable voice assistant devices to access pirated content. Joint Creators II provide a statement from an expert, Christopher Bell, who opines that “obtaining root access to the firmware on a voice assistant [device] in order to install arbitrary code to run on the device may lead to a compromise of . . . protection schemes” used to prevent unauthorized access to content from subscription streaming services.¹⁰⁹⁴ First, Mr. Bell states that a person who obtains root access likely could “attach a peripheral device and obtain permanent copies of sound recordings that the consumer only paid to access via a temporary subscription.”¹⁰⁹⁵ Second, he states that such a user “could potentially avoid limitations imposed by a service provider on the number of devices through which one subscription account may be accessed,” resulting in “multiple consumers sharing accounts.”¹⁰⁹⁶ As further evidence of piracy risk, Joint Creators II refer to a statement by an entrepreneur and inventor named Todd Troxell, who notes that he is unable “to create an app to ‘filter curse words from all applications’” without jailbreaking the device.¹⁰⁹⁷ According to Joint Creators II, “[t]his implies that jailbreaking will enable Mr. Troxell to impact content delivery from subscription music, television, e-book, and streaming services.”¹⁰⁹⁸

These piracy concerns, opponents argue, are greater in the context of voice assistant devices than in that of other devices. Opponents do not dispute that manufacturers

¹⁰⁹² 2015 Recommendation at 191.

¹⁰⁹³ EFF, ORI & ASCDI Class 6 Initial at 16.

¹⁰⁹⁴ Joint Creators II Class 6 Opp’n at Ex. 1 (statement of Christopher Bell, Vice President Tech. & Anti-Piracy, Business Development Warner Music Grp. (“Bell Statement”) at 2).

¹⁰⁹⁵ *Id.* (Bell Statement at 3).

¹⁰⁹⁶ *Id.* (Bell Statement at 3) (describing technological process analogous to “MAC address spoofing”).

¹⁰⁹⁷ *Id.* at 13 (citing EFF, ORI & ASCDI Class 6 Initial at Ex. A (statement of Todd Troxell at 1)).

¹⁰⁹⁸ *Id.*

generally provide root access to the operating systems on personal computers by default,¹⁰⁹⁹ or that the existing jailbreaking exemptions authorize such access on mobile computing devices. But in contrast, RIAA argues, voice assistant devices are relatively simple devices that do not incorporate the same “hardware and software complexity” that exists in personal computers, and therefore they provide more limited security options.¹¹⁰⁰ As a result, it contends, it may be easier to download unauthorized copies of sound recordings streamed to a voice assistant device than it would be to extract such material from a general purpose computing device.¹¹⁰¹ In addition, RIAA asserts that an exemption would threaten the viability of the licensing market for music streaming services. It notes that although there is “not a direct relationship” between music copyright owners and manufacturers of voice assistant devices, content owners’ negotiations with streaming services are premised on “an assumption that the music will be kept secure” when the services in turn allow the content to be accessed on particular devices.¹¹⁰² Opponents accordingly “consider access controls on voice assistant firmware to be one important aspect of ensuring secure delivery of content.”¹¹⁰³

Opponents further suggest that jailbreaking would facilitate the installation of counterfeit apps and apps that enable unauthorized access to copyrighted content. ACT argued that the requested expansion “would open the door to an online environment where illegal and counterfeit apps could be distributed freely.”¹¹⁰⁴ Joint Creators II and RIAA introduced evidence showing that counterfeit versions of Spotify and Pandora, as well as other apps providing unauthorized access to creative works, are widely available via Cydia, an online app store for jailbroken devices.¹¹⁰⁵ They argue that the jailbreaking of devices contributes to the availability and use of these illegal platforms, which “continue to cause significant harm to the entertainment industries.”¹¹⁰⁶ Joint Creators II accordingly urge that any expanded jailbreaking exemption “expressly exclude

¹⁰⁹⁹ See EFF Class 6 Reply at 5 (claiming that “[p]ersonal computers give root or superuser privileges to their owner or primary user by default”).

¹¹⁰⁰ Tr. at 100:03–13 (Apr. 12, 2018) (Hughes, RIAA).

¹¹⁰¹ Joint Creators II Class 6 Opp’n at Ex. 1 (Bell Statement at 3).

¹¹⁰² Tr. at 103:08–12 (Apr. 12, 2018) (Hughes, RIAA).

¹¹⁰³ Joint Creators II Class 6 Opp’n at Ex. 1 (Bell Statement at 4).

¹¹⁰⁴ ACT Class 6 Opp’n at 6.

¹¹⁰⁵ Tr. at 118:24–119:24, 121:24–122:14, Hearing Ex. 6-A (Apr. 12, 2018) (Williams, Joint Creators II) (discussing Cydia); Tr. at 144:17–145:05, Hearing Ex. 6-D (Apr. 12, 2018) (Hughes, RIAA) (same).

¹¹⁰⁶ Joint Creators II Class 6 Opp’n at 13. Joint Creators II cite a music industry study concluding that 40% of consumers across thirteen countries access unlicensed music. See *id.* (citing IFPI, CONNECTING WITH MUSIC: MUSIC CONSUMER INSIGHT REPORT 5 (2017), <http://www.ifpi.org/downloads/Music-Consumer-Insight-Report-2017.pdf>).

jailbreaking that results in the installation of applications that enable unauthorized access to copyrighted works,” as well as “circumvention that results in unauthorized access to music, or audiovisual works.”¹¹⁰⁷

Proponents respond that there is no showing that extending the jailbreaking exemption to voice assistant devices will increase the likelihood of piracy. EFF notes that subscription-based content apps like Spotify are also available on devices covered by the prior jailbreaking exemptions and argue there is no evidence that unauthorized access to such services “is more prevalent on mobile devices because of the legal ability to jailbreak.”¹¹⁰⁸ In addition, they argue that access to content from streaming services is protected by access controls that are separate from those protecting access to the device firmware. They offer a statement from their own expert, Seth Schoen, who opines that “[t]he device owner’s root privileges typically are not sufficient to give the owner unrestricted access to [entertainment] media, because the application software used to decrypt and view those media enforces other restrictions or contains other technical measures that do not depend on [withholding root privileges].”¹¹⁰⁹ Mr. Schoen further states that “[s]treaming media services can also use a variety of measures on the server side to enforce policies about authorized access to media. These measures do not depend on locking the user’s device against modification.”¹¹¹⁰ Such server-side measures include “restrict[ing] the number of simultaneous streams each customer can run” and “analyz[ing] connections to [the provider’s] server for unusual patterns of activity.”¹¹¹¹

As to ACT’s contention concerning the installation of counterfeit apps, EFF responds that “[t]he Register has never found that the mere ability to load counterfeit software on a general-purpose computing device justifies denying owners the right to install software of their choice.”¹¹¹² In their view, this concern is no greater for voice assistant devices than it is for smartphones.¹¹¹³

Based on the record as a whole, the Acting Register concludes that the fourth statutory factor is at best neutral, and therefore does not tip the balance against the requested exemption. With respect to the effect on the value of the device firmware, the same conclusions noted above regarding the fourth fair use factor, as well as the Register’s

¹¹⁰⁷ *Id.* at 12 n.7, 13.

¹¹⁰⁸ EFF Class 6 Reply at 5.

¹¹⁰⁹ *Id.* at Attach. 1 (statement of Seth Schoen, Senior Staff Technologist, EFF at 1–2); *see also id.* at 6.

¹¹¹⁰ *Id.* (statement of Seth Schoen, Senior Staff Technologist, EFF at 2).

¹¹¹¹ *Id.* (statement of Seth Schoen, Senior Staff Technologist, EFF at 2).

¹¹¹² *Id.* at 6.

¹¹¹³ *Id.*

past findings in the 2015 rulemaking on this issue, are applicable here. There is no evidence that the prior jailbreaking exemptions have harmed the market for firmware in smartphones or all-purpose mobile devices, and nothing in the record suggests that a different conclusion is warranted for voice assistant devices.¹¹¹⁴

Nor can the Acting Register conclude, upon the current record, that an expanded exemption is likely to harm the market for copyrighted works streamed to voice assistant devices. The Acting Register recognizes that piracy of streaming content is a highly significant concern, and credits Mr. Bell's statement that "[v]oice assistants are rapidly becoming an important part of the ecosystem through which consumers access music," as well as his description of the various TPMs applied to streaming apps to prevent unauthorized access and facilitate these licensed services.¹¹¹⁵ The evidence, however, does not indicate that the prior or current jailbreaking exemptions have led to increased levels of piracy on mobile devices.¹¹¹⁶ Indeed, opponents did not oppose renewal of the existing exemption.¹¹¹⁷ Furthermore, the evidence in this proceeding is insufficient to conclude that allowing jailbreaking of voice assistant devices will create a greater risk of unauthorized access to streaming content than exists with respect to other devices. Instead, it is only cursorily alleged that the hardware/software may be less robust in voice assistant devices than the other devices covered by the current exemption, and participants' experts offered conflicting descriptions of the potential impact of the exemption. Notably, Joint Creators II's experts acknowledged a general lack of familiarity with the access controls used on voice assistant devices. Mr. Bell noted that his employer, Warner Music Group, "is not privy to the precise methods used to securely communicate or store [information shared by streaming services] on each

¹¹¹⁴ Cf. 2015 Recommendation at 191 (finding "no evidence on the current record that jailbreaking will harm the market for smartphones, devices, or the firmware within them").

¹¹¹⁵ Joint Creators II Class 6 Opp'n at Ex. 1 (Bell Statement at 1).

¹¹¹⁶ The Acting Register appreciates opponents' concern that it is difficult to obtain direct evidence of such a relationship. See Tr. at 146:06–10 (Apr. 12, 2018) (Williams, Joint Creators II) ("[I]t's very difficult, if not impossible to collect one-to-one evidence showing that this individual person jailbroke their phone, installed this app and then downloaded our music."). Nothing in the statute, however, prevents the Register from drawing reasonable inferences from circumstantial evidence.

¹¹¹⁷ At the hearing, Joint Creators II suggested that opposition was impracticable in light of the Office's statement that it would recommend renewal in the absence of a "material change in the facts, law, or other circumstances set forth in the prior rulemaking record." NOI at 29,806; see Tr. at 120:11–20 (Apr. 12, 2018) (Williams, Joint Creators II). But that standard is not so rigid that it would have precluded the Office from considering relevant evidence going to the effect of the current exemption on piracy activity, had such evidence been available; indeed, the Office would consider evidence regarding whether the current exemptions were relied on by users seeking to install apps facilitating unauthorized access to copyrighted works.

voice assistant” and that “[g]iven that these devices are in their infancy, much is unknown to us about the technical measures utilized by the manufacturers and the streaming service providers.”¹¹¹⁸ At the hearing, RIAA’s Chief Technology Officer stated that he had “no personal experience researching . . . in detail” how difficult it may be to extract music data from the buffer of a voice assistant device.¹¹¹⁹ For opponents to establish that this statutory factor weighs against the exemption on the ground that it would adversely affect the market for their own creative works, they must offer more than speculation about the role the access controls protecting the device firmware may play in protecting access to those works.

Moreover, opponents did not dispute that subscription streaming services typically control access to their content with TPMs separate from those protecting the firmware. Mr. Bell stated that such services “would typically use multiple measures to prevent unauthorized access,” including requiring “a customer log-in and password to verify that a subscription has been obtained” and “encrypt[ing] streams as they are delivered to the consumer.”¹¹²⁰ The current record does not support a finding that jailbreaking undermines the effectiveness of those separate TPMs.¹¹²¹ Thus, while the Acting Register takes very seriously opponents’ concerns over potential impacts on licensing negotiations with such services, there is insufficient basis to conclude that granting the exemption is likely to disrupt that market.¹¹²²

As noted, Joint Creators II also urge that any exemption include limitations to guard against the installation of counterfeit or otherwise unauthorized apps. The Acting Register agrees that concerns over the potential use of jailbroken devices as platforms for unauthorized content are legitimate, and therefore she believes it appropriate to address

¹¹¹⁸ Joint Creators II Class 6 Opp’n at Ex. 1 (Bell Statement at 2, 4).

¹¹¹⁹ Tr. at 104:15–19 (Apr. 12, 2018) (Hughes, RIAA).

¹¹²⁰ Joint Creators II Class 6 Opp’n at Ex. 1 (Bell Statement at 2); *see also* Tr. at 132:09–11 (Apr. 12, 2018) (Williams, Joint Creators II) (stating “I think there are things that the services already do on the server side to prevent some of this”).

¹¹²¹ *Cf.* 2015 Recommendation at 215 (proponents of jailbreaking exemption for smart TVs “explained that access to copyrighted programming . . . from services like Hulu and Netflix ‘is controlled by separate TPMs’ from those used to protect the smart TV firmware, and Joint Creators do not rebut this claim”) (citation omitted). In this regard, the record evidence distinguishes the access controls protecting the firmware in voice assistant devices from the access controls in video game consoles. The Register has repeatedly concluded that “‘access controls on gaming consoles protect not only the console firmware, but the video games and applications that run on the console as well,’ many of which are owned by the console manufacturers.” *Id.* at 199 (quoting 2012 Recommendation at 41).

¹¹²² To the extent probative evidence of market impact emerges during the next three years, it will be relevant if the issue is revisited in the next rulemaking.

that issue in the regulatory text. The Acting Register declines, however, to recommend the specific language proposed by Joint Creators II, which would exclude jailbreaking “that results in the installation of applications that enable unauthorized access to copyrighted works.”¹¹²³ That formulation is potentially overbroad, as it could be read to bar even the installation of web browsers, which can “enable unauthorized access to copyrighted works.”¹¹²⁴ But the Acting Register will recommend that the exemption expressly exclude circumvention undertaken for purpose of gaining unauthorized access to copyrighted works other than the device firmware. The Acting Register will discuss this condition further in the Conclusion and Recommendation section below.

With respect to the fifth factor, the Acting Register does not find any additional factors relevant to the asserted adverse effects in this proposed class. Therefore, in light of the foregoing, the Acting Register finds that users are adversely affected in their ability to jailbreak voice assistant devices, or are likely to be so adversely affected during the next three years. The Acting Register does not, however, find such an adverse effect resulting from the lack of express regulatory language permitting circumvention for purposes of enabling or disabling hardware features of the device.

3. NTIA Comments

NTIA agrees with the Acting Register that an exemption is warranted, though it would adopt the broader language requested by proponents. It concludes that jailbreaking voice assistant devices is unlikely to harm the market for copyrighted works, noting that there is no evidence of market harm for the devices covered by the current exemption.¹¹²⁵ NTIA rejects opponents’ argument about unauthorized access to entertainment content on the ground that it “fail[s] to explain why infringement is more likely on voice assistant platforms than on smartphones, tablets, and other devices already subject to the exemption.”¹¹²⁶

NTIA further concludes that proponents have demonstrated that users in this class are adversely affected by the statutory prohibition. In its view, “the proffered alternatives to circumvention—including building one’s own device from an online model—are not viable.”¹¹²⁷ In addition, relying on the Register’s application of the statutory factors to prior jailbreaking exemptions, NTIA concludes that “the proposed exemption would

¹¹²³ Joint Creators II Class 6 Opp’n at 13.

¹¹²⁴ EFF Class 6 Reply at 6.

¹¹²⁵ NTIA Letter at 47.

¹¹²⁶ *Id.*

¹¹²⁷ *Id.* at 48.

have either no effect or a positive effect on the availability of copyrighted firmware and application software.”¹¹²⁸

NTIA’s recommended exemption language includes proponents’ suggested reference to “enabl[ing] or disabl[ing] hardware features of the smartphone or device.”¹¹²⁹ NTIA does not address this provision in detail, but it states in a footnote that the Register found in 2012 that such uses “would likely be transformative and non-infringing.”¹¹³⁰ Yet in that proceeding the Register did not reach that conclusion specifically with respect to enabling or disabling hardware features; the 2012 Recommendation does not refer to those activities.¹¹³¹ For the reasons discussed above, the Acting Register concludes that the addition of this language is not warranted on the current record.

4. Conclusion and Recommendation

For the reasons described above, proponents of Class 6 have satisfied their burden of showing that technological measures applied to voice assistant devices have an adverse effect on noninfringing uses. The Acting Register accordingly recommends adoption of an exemption authorizing the jailbreaking of such devices.

The Acting Register finds that proponents’ definition of “voice assistant device” appropriately describes the scope of the category of devices. Such devices must be “designed to take user input primarily by voice,” which excludes video game consoles, set-top boxes, DVD and Blu-Ray players, and similar devices that typically are operated using buttons. In addition, consistent with the existing definition of “portable all-purpose mobile computing device,” a voice assistant device must be “primarily designed to run a wide variety of programs rather than for consumption of a particular type of media content.” This requirement provides an additional basis for excluding game consoles, set-top boxes, and digital disc players, which ordinarily are not designed to run a wide variety of computer programs (as distinguished from a particular type of program, such as video games). Finally, a voice assistant device must be “designed to be installed in a home or office.”

In addition, as noted, the recommended exemption does not extend to circumvention intended to facilitate access to pirated works. The exemption text accordingly includes the condition that circumvention not be “accomplished for the purpose of gaining unauthorized access to other copyrighted works.” Because the Acting Register previously determined that the existing jailbreaking exemptions should be renewed in

¹¹²⁸ *Id.*

¹¹²⁹ *Id.* at 49; *see id.* at 45 (quoting EFF, ORI & ASCDI Class 6 Initial at 2).

¹¹³⁰ *Id.* at 47 n.234 (citing 2012 Recommendation at 71–72).

¹¹³¹ *See* 2012 Recommendation at 72–74.

their current form, she does not at this stage recommend adding this new language to those exemptions. Therefore, although proponents framed their request as an amendment of the current exemption pertaining to smartphones and portable all-purpose mobile computing devices, the Acting Register recommends that the newly granted exemption for voice assistant devices appear as a separate provision in the regulations so that it may incorporate this additional condition. In the next rulemaking, the Office may seek public input on whether it is appropriate to extend this language to the other jailbreaking exemptions.

Accordingly, the Acting Register recommends that the Librarian designate the following class:

Computer programs that enable voice assistant devices to execute lawfully obtained software applications, where circumvention is accomplished for the sole purpose of enabling interoperability of such applications with computer programs on the device, or to permit removal of software from the device, and is not accomplished for the purpose of gaining unauthorized access to other copyrighted works. For purposes of this paragraph (b)(8), a “voice assistant device” is a device that is primarily designed to run a wide variety of programs rather than for consumption of a particular type of media content, is designed to take user input primarily by voice, and is designed to be installed in a home or office.

G. Proposed Class 7: Computer Programs—Repair

1. Background

a. Summary of Proposed Exemption

Several organizations petitioned to expand the current exemption allowing for circumvention of access controls controlling the functioning of motorized land vehicles for purposes of diagnosis, repair, or lawful modification of a vehicle function to allow an additional range of activities.¹¹³² The Office synthesized these suggestions into Proposed Class 7, for which it sought public comment on “whether an expanded exemption to cover additional repair and related activities should be adopted, including any proposed regulatory language.”¹¹³³ In response, the Office received comments in support of expanding the exemption, along with proposed regulatory language, from Farmers; EFF,

¹¹³² Auto Care & CTA Class 7 Pet. at 2–3; EFF Class 7 Pet. at 2; iFixit Class 7 Pet. at 2; AFBF, Nat'l Corn Growers Ass'n & Nat'l Farmers Union (collectively, “Farmers”) Class 7 Pet. at 2; *see* 37 C.F.R. § 201.40(b)(6) (2016).

¹¹³³ NPRM at 49,561.

ORI, and ASCDI (collectively, “EFF/ORI/ASCDI”); and MEMA. Additional comments in support of an expanded exemption were submitted by Auto Care, CTA, eBay Inc., FSF, and sixteen individuals.¹¹³⁴ Although the commenters’ proposals varied in scope, and there is no singular unified proposed exemption, they can be grouped into the following four categories:

- 1) removing the current limitation prohibiting circumvention of TPMs to access computer programs primarily designed for the control of vehicle telematics and entertainment systems;¹¹³⁵
- 2) expanding the exemption to apply to other types of software-enabled devices, including appliances, computers, toys, and other Internet of Things devices. For example, EFF proposes “an exemption to enable circumvention of access controls applied to software and compilations of data, where circumvention is for the purpose of noninfringing repair, diagnosis, or modification of a software-enabled device”;¹¹³⁶
- 3) extending the exemption to allow circumvention by third-party service providers, and in particular, independent vehicle repair shops, for purposes of diagnosis, repair, and lawful modification;¹¹³⁷ and
- 4) allowing the acquisition, use, and dissemination of circumvention tools in furtherance of diagnosis, repair, and modification.¹¹³⁸

Opposition comments, reflecting a diverse set of concerns, were submitted by the Alliance of Automobile Manufacturers (“Auto Alliance”); DVD CCA and AACS LA; ESA; Harman International; and Joint Creators II.¹¹³⁹

¹¹³⁴ The individuals supporting this class are Alex Adams, William Brown, Arthur De Volve, Jim Delton, Pat Goltz, Geoffrey Gross, Robert Johnson, Harvey Lewis, Lovelidge, Michael Pasis, Robert Preston, Scott Schaefer, Richard Taylor, James Walker, Andrew White, Daniel Willhelm, and Adam Zuckerman.

¹¹³⁵ CTA Class 7 Initial at 5–6; Farmers Class 7 Initial at 6 (with respect only to mechanized agricultural equipment); Auto Care Class 7 Initial at 4–6.

¹¹³⁶ EFF Class 7 Pet. at 2; *see also* Consumers Union Class 7 Initial at 2; EFF, ORI & ASCDI Class 7 Initial at 2–7; FSF Class 7 Initial at 1–2.

¹¹³⁷ *See, e.g.*, Consumers Union Class 7 Initial at 1; CTA Class 7 Initial at 1–2, 4; Farmers Class 7 Initial at 6; MEMA Class 7 Initial at 6.

¹¹³⁸ *See, e.g.*, Auto Care Class 7 Initial at 4; CTA Class 7 Initial at 2–5; FSF Class 7 Initial at 2.

¹¹³⁹ Auto Alliance Class 7 Opp’n (joined by The Ass’n of Global Automakers (“Global Automakers”)); Harman Class 7 Opp’n at 2 (joined by Panasonic Corporation of North America); Joint Creators II Class 7 Initial at 4–5.

b. Overview of Issues

Following the 2015 rulemaking, the Copyright Office issued two policy studies that touched upon issues relevant to the need to repair or modify software-embedded devices. In its 2016 Software Study, the Office observed that current copyright law, including section 117 and fair use under section 107, may provide relief for many repair and tinkering activities, while acknowledging that the analyses could be fact-intensive.¹¹⁴⁰ Next, in its Section 1201 Report, the Office suggested that section 1201 may be inhibiting legitimate repair activities, and recommended legislative consideration of a permanent exemption for diagnosis, maintenance, and repair activities.¹¹⁴¹ The Office, however, declined to support a permanent exemption for modification, suggesting that the triennial rulemaking continue to address these activities by tailoring exemptions to specific classes of works.¹¹⁴²

Turning to the four categories of concerns presented by this class, participants raise a host of issues addressing the use of access controls on vehicles and other devices in ways that allegedly inhibit diagnosis, repair, and modification.

Third-Party Assistance. In 2015, the Register declined to adopt language that would allow circumvention “on behalf of” the owner, concluding that the phrase might implicate the anti-trafficking provisions set forth in section 1201(a)(2) and (b).¹¹⁴³ In this rulemaking, some proponents suggest that the inability to obtain expert assistance has left ordinary repair activities out of the reach of many individual consumers.¹¹⁴⁴ For example, Farmers explain that farmers and ranchers “need local expert assistance” to modify original equipment manufacturer (“OEM”) software and repair tractors and other agricultural vehicles, including to perform “routine and simple maintenance or [to] control vehicle operating modes after repair.”¹¹⁴⁵ They attach six declarations attesting to the need for local mechanical assistance.¹¹⁴⁶ While the main of commenters were

¹¹⁴⁰ U.S. COPYRIGHT OFFICE, SOFTWARE-ENABLED CONSUMER PRODUCTS 35–41 (2016), <https://www.copyright.gov/policy/software/software-full-report.pdf> (“Software Study”).

¹¹⁴¹ Section 1201 Report at 92–95.

¹¹⁴² *Id.* at 95–97 (“[I]n many cases modification activities may not implicate significant copyright interests. On the other hand, some tinkering activities may result in the creations of new works in ways that implicate the copyright owner’s exclusive right to prepare derivative works.”).

¹¹⁴³ 2015 Recommendation at 246.

¹¹⁴⁴ *See, e.g.*, Auto Care Class 7 Initial at 3; Consumers Union Class 7 Initial at 2; CTA Class 7 Initial at 1–2.

¹¹⁴⁵ Farmers Class 7 Initial at 7.

¹¹⁴⁶ Farmers Class 7 Initial at 12 (decl. of Kevin Kenney, Software Engineer for Agricultural Vehicles), 14 (decl. of Guy Mills, Jr., Farmer), at 18 (decl. of Charles “Jason” Pratt, Farmer), 19 (decl. of Kyle Schwarting, Farmer), 20 (decl. of Paul Shamblin, Lead Mechanic at Talley Farms), 21

concerned with enabling independent automobile or agricultural vehicle repair, other examples involved smartphones or other devices.¹¹⁴⁷ Opponents argue that the statute does not allow the Register to recommend, or the Librarian adopt, an exemption that authorizes third-party assistance on the basis that it would contravene the anti-trafficking provisions.¹¹⁴⁸

Provision of Tools. In 2015, the Register noted that section 1201(a)(1) does not provide the authority to adopt an exemption that permits “trafficking” in circumvention tools.¹¹⁴⁹ In the subsequent Section 1201 Report, the Copyright Office concluded that “exemption beneficiaries should be able to make necessary tools solely for their own use in carrying out exempted circumventions.”¹¹⁵⁰ Here, some proponents ask the Office to explicitly affirm this view in the exemption to make it more valuable to users.¹¹⁵¹ Others propose that companies that specialize in software development should be allowed to develop and distribute tools to users.¹¹⁵² Opponents respond that the interpretive framework has not changed since 2015, and that even if beneficiaries may use tools, it is outside the Librarian’s authority to regulate the scope of section 1201(a)(2) and (b).¹¹⁵³

Vehicle Telematics and Entertainment Systems. The 2015 rulemaking excluded ECUs chiefly designed to operate entertainment and telematics systems in vehicles, explaining that the record was largely focused on ECUs that control the vehicle’s mechanical operation, and noting concerns about unauthorized access to the services and content that entertainment and telematics ECUs protect.¹¹⁵⁴ Now, some proponents desire to remove that limitation. As they describe it, access to vehicle telematics and entertainment systems is restricted through a variety of TPMs including encrypted ECUs, cell phone baseband locks on telematics systems, passwords on diagnostic interfaces, “virtual

(decl. of John Doe, Large-Scale Farmer), 22 (decl. of Mary Pat Weyback, Deputy General Counsel, Am. Farm Bureau Fed’n) (affirming that the “John Doe” declarant who wished to remain anonymous was known to AFBF).

¹¹⁴⁷ See, e.g., ASCDI, ORI & Repair.org Class 7 Post-Hearing Resp. at 1–2; Consumers Union Class 7 Initial at 2–3; EFF, Auto Care, Dorman, iFixit, SmarTeks & Repair.org Class 7 Post-Hearing Resp. at 2–5; iFixit Class 7 Pet. at 2.

¹¹⁴⁸ See, e.g., Auto Alliance Class 7 Opp’n at 7–9; Joint Creators II Class 7 Opp’n at 12; Tr. at 19:02–07 (Apr. 10, 2018) (Williams, Joint Creators II).

¹¹⁴⁹ 2015 Recommendation at 246–47.

¹¹⁵⁰ Section 1201 Report at 53–54.

¹¹⁵¹ See CTA Class 7 Initial at 2, 4–6.

¹¹⁵² See Auto Care & CTA Class 7 Pet. at 3; iFixit Class 7 Pet. at 2.

¹¹⁵³ See Auto Alliance Class 7 Opp’n at 9–10; Joint Creators II Class 7 Opp’n at 12.

¹¹⁵⁴ 2015 Recommendation at 246.

handshake” configurations, memory modifications, and disabled access to “ports” from which vehicle data could be extracted.¹¹⁵⁵ Proponents suggest that access to the telematics system is sometimes required to restore vehicle functioning, particularly by accessing the diagnostics data stored in the system.¹¹⁵⁶ Opponents respond that some of the proposed uses, such as accessing “storage capacity” of a vehicle entertainment system, are not fair.¹¹⁵⁷ In opponents’ view, expanding the current exemption would have an adverse impact on the market for copyrighted works that are accessed through these vehicle systems.¹¹⁵⁸ In any event, they argue that proponents have not sufficiently demonstrated that it is necessary to circumvent TPMs restricting access to these systems to engage in diagnosis, repair, or modification.¹¹⁵⁹

Other Devices. Many proponents seek to broaden the exemption to permit the diagnosis and repair of other software-enabled devices, as well as modification of such devices.¹¹⁶⁰ They suggest that the proliferation of software-enabled devices is challenging “long-established, fundamental rights and expectations of consumers regarding their ownership and dominion over the products they have lawfully acquired,” and that repair is a fair use.¹¹⁶¹ EFF/ORI/ASCDI generally assert that TPMs—including encryption, passwords, and virtual handshakes—restrict access to software and data compilations embedded on these devices.¹¹⁶² Others observe that TPMs prohibit access

¹¹⁵⁵ See CTA Class 7 Initial at 3; Farmers Class 7 Initial at 3–8; iFixit Class 7 Pet. at 2; MEMA Class 7 Initial at 2.

¹¹⁵⁶ See Auto Care Class 7 Initial at 5; CTA Class 7 Initial at 3; Tr. at 46:14–48:14 (Apr. 10, 2018) (Lowe, Auto Care); Tr. at 65:07–66:17 (Apr. 25, 2017) (Wiens, iFixit).

¹¹⁵⁷ See Harman Class 7 Opp’n at 5, 7–8; Joint Creators II Class 7 Opp’n at 8 n.3.

¹¹⁵⁸ See Harman Class 7 Opp’n at 8; Joint Creators II Class 7 Opp’n at 11.

¹¹⁵⁹ See Auto Alliance Class 7 Post-Hearing Resp. at 1; Joint Creators II Class 7 Post-Hearing Resp. at 1; Tr. at 60:19–22; 60:25–61:23 (Apr. 25, 2018) (Mooney, Harman); Tr. at 57:12–24 (Apr. 10, 2018) (Williams, Joint Creators II).

¹¹⁶⁰ Consumers Union Class 7 Initial at 2–3; EFF, ORI & ASCDI Class 7 Initial at 2–7; EFF, AutoCare, Dorman, iFixit, SmarTeks, Puls & Repair.org Class 7 Post-Hearing Resp. at 2–3; FSF Class 7 Initial at 1–2.

¹¹⁶¹ Consumers Union Class 7 Initial at 2–3; *see also* EFF, ORI & ASCDI Class 7 Initial at 2 (software-enabled devices “limit[] the ability of device owners to repair, diagnose, or modify their property”).

¹¹⁶² EFF, ORI & ASCDI Class 7 Initial at 2; *see also* DVD CCA & AACS LA Class 7 Opp’n at 2 (suggesting CSS and AACS would be implicated); Joint Creators II Class 7 Opp’n at 5 (“It is impossible to list all of the access controls that would be undermined by [EFF/ORI/ASCDI’s] extremely broad proposal.”).

to software controlling LG appliances and Apple iPhones.¹¹⁶³ In response, opponents comment that, overall, proponents have not met their statutory burden of demonstrating that TPMs are having an adverse impact on noninfringing uses of software-enabled devices.¹¹⁶⁴ They also express concerns about the impact of an expansion on highly expressive works, in contrast to the prior rulemaking's focus on re-enabling activities related to vehicle functioning that had long been purely mechanical and unrelated to by copyright. Particularly where devices permit access to other expressive content, opponents suggest circumvention would enable unauthorized access and facilitate piracy.¹¹⁶⁵ With respect to the specific proposal to allow modification of software-enabled devices (as distinguished from repair), opponents assert that such activity may implicate copyright owners' exclusive right to prepare derivative works.¹¹⁶⁶

2. Discussion

a. Scope of the Proposed Class

Outside of the vehicle context, many proponents urge the adoption of a broad exemption, generally protecting a variety of diagnosis, repair, maintenance, and modification activities on "all devices that run software" without regard to differences among devices or the technology embedded within them.¹¹⁶⁷ As they put it, software has become ubiquitous in consumer and other devices, and TPMs are "limiting the ability of device owners to repair, diagnose, or modify their property, thanks in part to restrictions imposed by Section 1201(a)(1)."¹¹⁶⁸ In EFF/ORI/ASCDI's view, where categories of devices are "exceptions to that rule or . . . present special complications," those devices may be carved out from the general exemption.¹¹⁶⁹ Similarly, ASCDI/ORI/Repair.org claim that "all products with embedded computer chips are based on the same architecture and the same components, which are assembled at the same factories in a global marketplace," and argue that "developing rules that apply to these products based on what they are capable of doing, as opposed to how they are actually used, is problematic."¹¹⁷⁰

¹¹⁶³ See Tr. at 30:15–31:01 (Apr. 25, 2018) (Wiens, iFixit) (discussing LG appliances); Tr. at 32:12–20, 32:23–33:04, 33:11–16 (Apr. 25, 2018) (Wiens, iFixit) (describing issue with replacing iPhone home button due to TPM on device).

¹¹⁶⁴ See Joint Creators II Class 7 Opp'n at 7; Joint Creators II Class 7 Post-Hearing Resp. at 1–3.

¹¹⁶⁵ See ESA Class 7 Opp'n at 2–5, 7–8; Joint Creators II Class 7 Opp'n at 10–11.

¹¹⁶⁶ See Joint Creators II Opp'n at 9–10; Tr. 26:04–08 (Apr. 25, 2018) (Williams, Joint Creators II).

¹¹⁶⁷ See, e.g., EFF, ORI & ASCDI Class 7 Initial at 2, 14.

¹¹⁶⁸ *Id.* at 2.

¹¹⁶⁹ *Id.* at 14.

¹¹⁷⁰ ASCDI, ORI & Repair.org Class 7 Post-Hearing Resp. at 2.

Opponents respond that proposals that would cover “every conceivable device and machine” are “overbroad and factually unsupported.”¹¹⁷¹ As a larger matter, they suggest that adopting such an exemption notwithstanding the scant record in this class would set a precedent disavowing previous procedural “rules of the road” that would impact future rulemakings.¹¹⁷² Regarding this class specifically, they argue that proponents’ broad approach “does not recognize any distinctions among types of devices as to the TPMs and methods of circumvention involved, the associated use cases, and the infringement that would be involved in circumvention or result from it.”¹¹⁷³ In particular, Joint Creators II contend that proponents have offered no evidence regarding the need to repair devices used to access literary works, motion pictures, and music.¹¹⁷⁴ They suggest that because highly expressive works like music or feature films may be protected and accessed differently on different devices, the fair use and adverse effects analysis can vary significantly from one device to another.¹¹⁷⁵ For example, ESA submits that unlike many other software-enabled devices, video game consoles provide access to “vast numbers of valuable copyrighted works” with licensing arrangements that depend upon a TPM-secured platform.¹¹⁷⁶ Joint Creators II also observe that the Section 1201 Report noted that modification “raises significantly different issues from repair.”¹¹⁷⁷

Further, opponents note that the Register previously declined to recommend exemptions that would permit circumvention to access ECUs on in-vehicle entertainment systems and to repair video game consoles, concluding *inter alia* that the record lacked sufficient evidence to support a need for circumvention.¹¹⁷⁸ Therefore, opponents contend that any exemption should enumerate devices for which there is a record demonstrating that a TPM is causing or is likely to cause an adverse effect on noninfringing uses.¹¹⁷⁹

¹¹⁷¹ Joint Creators II Class 7 Opp’n at 4; *see also* Tr. at 77:01–80:08 (Apr. 10, 2018) (Williams, Joint Creators II).

¹¹⁷² Tr. 28:02–12 (Apr. 25, 2018) (Williams, Joint Creators II).

¹¹⁷³ ESA Class 7 Opp’n at 6; *see also* Tr. at 38:22–40:25 (Apr. 25, 2018) (Williams, Joint Creators II).

¹¹⁷⁴ Joint Creators II Class 7 Opp’n at 4.

¹¹⁷⁵ *See* Tr. at 16:14–18 (Apr. 25, 2018) (Williams, Joint Creators II) (arguing that in the case of “devices that are designed to access expressive works, . . . the countervailing interest of preventing the unauthorized access outweighs the need to get to independent repair”).

¹¹⁷⁶ ESA Class 7 Opp’n at 2–5; *see also* Joint Creators Class 7 Opp’n at 9–10; Joint Creators II Class 7 *Ex Parte* Meeting Summary at 2 (July 24, 2018).

¹¹⁷⁷ Joint Creators II Class 7 Opp’n at 4–5 (quoting Section 1201 Report at 95).

¹¹⁷⁸ *Id.* at 3.

¹¹⁷⁹ Joint Creators II Class 7 Post-Hearing Resp. at 2; Tr. at 79:19–80:08 (Apr. 10, 2018) (Williams, Joint Creators II).

While recognizing that the ability to repair software-enabled devices has been acknowledged as an important interest, both in the context of copyright and in other legal areas,¹¹⁸⁰ the Acting Register concludes that the record in this class is insufficient to fully evaluate, as statutorily required, an exemption encompassing all types of software-enabled consumer products. When considering a class of works, the statute requires a determination that users “*are, or are likely to be* in the succeeding 3-year period, adversely affected by the prohibition . . . in their ability to make noninfringing uses.”¹¹⁸¹ The Copyright Office has consistently interpreted that language as requiring the Register to determine whether, on balance, the evidence supports the requested exemption.¹¹⁸² This interpretation is strongly supported by the legislative history, which explains, “[i]f the rulemaking has produced insufficient evidence to determine whether there have been adverse impacts with respect to particular classes,” an exemption should not issue.¹¹⁸³ The legislative history further suggests that the definition of a class should consider whether the availability of one category of computer programs is likely to be affected “in the same way” by the circumvention bar as the availability of other programs for the same purpose.¹¹⁸⁴

Here, it is not clear whether “devices,” generally, share enough commonalities for the Acting Register to evaluate whether access controls are, in practice, adversely affecting noninfringing uses. The rulemaking record lacks a minimum quantity of evidence for a broad panoply of the devices that proponents reference, let alone those which are not introduced but would fall under the proposed exemption. Outside of the vehicle context, the information provided is sparse regarding specific types of devices where TPMs inhibit repair or modification activities, with initial comments providing only cursory notice of devices considered by proponents as “relevant” to the exemption.¹¹⁸⁵ To fully air issues in this class, including to give proper notice to opponents, the Copyright Office repeatedly sought additional information on these issues in hearings in

¹¹⁸⁰ See Section 1201 Report at 88–90; Software Study at 31–33.

¹¹⁸¹ 17 U.S.C. § 1201(a)(1)(C) (emphasis added); see also Section 1201 Report at 111.

¹¹⁸² Section 1201 Report at 111–12; see also NPRM at 49,552; 2015 Recommendation at 13–14; 2012 Recommendation at 6; 2010 Recommendation at 10; 2006 Recommendation at 8; 2003 Recommendation at 10–11, 19–20.

¹¹⁸³ Commerce Comm. Report at 38 (stating a class should be “a narrow and focused subset of the broad categories of works . . . identified in section 102 of the Copyright Act.”).

¹¹⁸⁴ House Manager’s Report at 7.

¹¹⁸⁵ EFF, ORI & ASCDI Class 7 Initial at 2; see also Consumers Union Class 7 Initial (not identifying any specific devices). As noted above, the other initial commenters were focused on an exemption limited to vehicles.

multiple cities, as well as in post-hearing letters.¹¹⁸⁶ While in post-hearing comments, some proponents ultimately submitted lengthy lists of specific devices that “*could be configured* to include technological protection measures that would prevent independent maintenance and repair,” for many categories, it is still unclear whether TPMs are typically applied to these devices.¹¹⁸⁷

As a general matter, this level of information is insufficient for the Acting Register to determine whether users of various devices are similarly situated for purposes of repair and modification. Many of proponents’ examples do not indicate, for example, whether the relevant TPMs effectively control access within the meaning of the statute, whether the TPMs control access to copyrighted works other than the device firmware, or whether reasonable alternatives to circumvention may exist. Similarly, proponents contend that section 117 provides a basis for adopting an exemption, but have introduced scant evidence demonstrating whether “devices,” generally, and the software embedded in them, are likely to be owned, as that statute requires.¹¹⁸⁸ Further, as opponents note, past rulemakings have sometimes declined to recommend adoption of exemptions for repair of specific types of devices after considering adverse effects in reference to the statutory factors.¹¹⁸⁹

Given these evidentiary deficiencies, the Acting Register concludes that the more prudent approach is to refine the class based on the types of devices for which there is a cognizable record.¹¹⁹⁰ This approach is consistent with the Office’s practice in past

¹¹⁸⁶ See, e.g., Class 7 Post-Hearing Letter at 2 (May 21, 2018); Tr. at 28:18–30:01 (Apr. 25, 2018) (Smith, U.S. Copyright Office; Wiens, iFixit); Tr. at 93:22–97:16 (Apr. 10, 2018) (Shore, ORI; Smith, U.S. Copyright Office); Tr. at 84:07–85:01 (Apr. 10, 2018) (Smith, U.S. Copyright Office).

¹¹⁸⁷ ASCDI, ORI & Repair.org Class 7 Post-Hearing Resp. at 2 and Attach.; EFF, Auto Care, Dorman, iFixit, SmarTeks & Repair.org Class 7 Post-Hearing Resp. at 2–3 (listing identical categories of devices as ASCDI/ORI/Repair.org, but not addressing presence of TPMs).

¹¹⁸⁸ 17 U.S.C. § 117; see, e.g., ASCDI, ORI & Repair.org Class 7 Post-Hearing Resp. at 2 (June 11, 2018) (listing various retail and wholesale equipment, servers, networking and office equipment, without addressing lease versus purchase options).

¹¹⁸⁹ See 2015 Recommendation 199–201 (video game consoles); 2012 Recommendation at 47 (same).

¹¹⁹⁰ As a matter of policy, it is true that the Copyright Office has signaled that repair and maintenance activities are likely to be noninfringing, conclusions that the Acting Register draws upon while evaluating the noninfringing basis for the proposed class below. See Section 1201 Report at 88–90, 92–95; Software Study at 31–41. Further, since a statutory exemption need not be constrained by the fail-safe mechanisms of the triennial rulemaking, the Office continues to recommend legislative consideration of a properly crafted permanent exemption for repair activities. See Section 1201 Report at v, 90, 92–95.

rulemakings.¹¹⁹¹ Specifically, the device categories for which the Acting Register has determined that proponents provided cognizable legal and factual support to evaluate an exemption are as follows:

- Vehicle telematics and entertainment systems. A number of commenters focus their discussion strictly on expanding the range of activities permitted within the confines of motorized land vehicles.¹¹⁹²
- Home appliances and home systems. A number of participants provided information related to the need to circumvent access controls on home appliances and home systems, such as refrigerators, toasters, and lighting and environmental control systems, and suggested that this category shares a commonality compared to other devices.¹¹⁹³
- Smartphones. The record also contains multiple testimonies regarding the need to circumvent access controls on smartphones to repair them for owners.¹¹⁹⁴
- Video game consoles. At the public hearings and in post-hearing responses, proponents contended that TPMs prevent repair of issues with optical drives and other console malfunctions.¹¹⁹⁵
- Computers and ancillary computing devices. Proponents offer some limited information in support of expanding the exemption to computers and a variety

¹¹⁹¹ See, e.g., 2015 Recommendation at 317 (declining to recommend an “open-ended exemption” for security research in favor of an exemption tailored to machines and devices for which there was an “evidentiary showing of adverse effects”); 2010 Recommendation at 16 (explaining that “the records in [the 2010] and prior rulemaking proceedings have demonstrated that in many cases, [an initial] subset of a category of works should be further tailored in accordance with the evidence in the record”).

¹¹⁹² See Auto Care Class 7 Initial at 1; CTA Class 7 Initial at 1; eBay Class 7 Reply at 1; Farmers Class 7 Initial; MEMA Class 7 Initial at 2.

¹¹⁹³ See ASCDI, ORI & Repair.org Class 7 Post-Hearing Resp. at 2 (June 11, 2018); EFF, ORI & ASCDI Class 7 Initial at 3 (lighting systems); EFF, AutoCare, Dorman, iFixit, SmarTeks, Puls & Repair.org Class 7 Post-Hearing Resp. at 2 (June 11, 2018); Tr. at 83:08–16 (Apr. 10, 2018) (Band, ORI) (discussing thermostats); Tr. at 30:17–18 (Apr. 25, 2018) (Wiens, iFixit) (“LG, since the beginning of 2017, hasn’t sold any appliances that aren’t Wi-Fi connected.”).

¹¹⁹⁴ See Tr. at 13:19–14:24 (Apr. 25, 2018) (Zieminski, Puls) (“we repair iPhones, Google Pixel devices, Samsung devices”); Tr. at 32:12–20, 32:23–33:04, 33:11–16 (Apr. 25, 2018) (Wiens, iFixit) (describing inability to restore iPhones to full functionality after replacing batteries and home buttons).

¹¹⁹⁵ See EFF, AutoCare, Dorman, iFixit, SmarTeks, Puls & Repair.org Class 7 Post-Hearing Resp. at 4–5; Tr. at 12:17–13:23 (Apr. 25, 2018) (Zieminski, Puls); Tr. at 29:08–12 (Apr. 25, 2018) (Wiens, iFixit).

of ancillary computing devices, including hard drives, debuggers, servers, routers, and switches.¹¹⁹⁶

- Consumables. The record includes some testimony regarding consumers' desire to modify devices to permit the use of replacement cartridges, specifically relating to ink, coffee, juice, and cat litter box cleaning fluid.¹¹⁹⁷
- In addition, EFF offers specific examples of the desire to circumvent TPMs to modify a few other specific devices, including a toy robotic dog, a camera gimbal (*i.e.*, a pivoted mount), and handheld two-way radios.¹¹⁹⁸

Accordingly, the Acting Register bases the following analysis on whether there are, or are likely to be, adverse effects on noninfringing uses of these categories of devices (including analyzing below whether there is more than a *de minimis* showing for each of these categories).¹¹⁹⁹

b. Works Protected by Copyright

ECUs that control vehicle operations, telematics, and infotainment systems constitute "computer programs" as defined in section 101.¹²⁰⁰ Likewise, software that enables other consumer devices, including home appliances and phones, are computer programs.¹²⁰¹ The Acting Register accordingly finds that at least some works in the class are protected by copyright.

c. Asserted Noninfringing Uses

The following analysis first considers proposed expansions within the context of motorized land vehicles (*e.g.*, personal automobiles and mechanized agricultural

¹¹⁹⁶ See EFF, ORI & ASCDI Class 7 Initial at 6–7; *see also* ASCDI, ORI & Repair.org Class 7 Post-Hearing Resp. at 2; EFF Class 7 Reply at 5; EFF, Auto Care, Dorman, iFixit, SmarTeks, Puls, Repair.org Class 7 Post-Hearing Resp. at 2.

¹¹⁹⁷ See Tr. at 18:01–07 (Apr. 25, 2018) (Walsh, EFF); Tr. at 44:13–46:15 (Apr. 25, 2018) (Walsh, EFF; Wiens, iFixit); *see also* EFF, ORI & ASCDI Class 7 Initial at 3–4.

¹¹⁹⁸ EFF Class 7 Reply at 5; EFF, ORI & ASCDI Class 7 Initial at 3–5.

¹¹⁹⁹ In contrast, while the post-hearing letters from EFF and ORI/ASCDI included laundry lists of other devices, including fork-lifts, staplers, and cash registers, these lists, or other passing references in the record, do not provide enough information for the Acting Register to properly consider them (or their commonalities with other devices) with respect to the statutory elements of the rulemaking. *See* EFF, Auto Care, Dorman, iFixit, SmarTeks, Puls, Repair.org Class 7 Post-Hearing Resp. at 2–3; ORI & ASCDI Class 7 Post-Hearing Resp. at 2.

¹²⁰⁰ *See* 2015 Recommendation at 218.

¹²⁰¹ *See* Software Study at 2–3.

vehicles), and then addresses expansion of the exemption to other types of devices. While infringement concerns can bear upon issues related to third-party assistance and provision and acquisition of circumvention tools (including whether uses are strictly personal or commercial), the primary focus of those issues relates to whether the expansions would contravene the anti-trafficking provisions of section 1201(a)(2) and (b). Accordingly, issues related to third-party assistance and circumvention tools are primarily discussed separately at the end of the recommendation for this class.

i. Vehicle Telematics and Entertainment Systems

Proponents assert that diagnosis, repair, and lawful modification of vehicle telematics and entertainment systems are fair uses and are noninfringing under section 117.

1) Fair Use

Proponents request removing the regulatory limitation “except for computer programs primarily designed for the control of telematics or entertainment systems for such vehicle” to allow for a broader range of diagnosis, repair, and lawful modification activities.¹²⁰² They argue that telematics and entertainment systems often are protected by the same TPMs used to protect other vehicle software, and therefore this limitation effectively excludes other systems that need to be accessed for purposes of vehicle diagnosis, repair, or modification of a vehicle function. Proponents also seek to repair or replace the entertainment systems themselves and to access the “storage capacity” of such systems for noninfringing uses. Because these uses present different issues under the fair use analysis, the Acting Register addresses them separately below.

Diagnosis, Repair, and Lawful Modifications of Vehicle Functions. Regarding the purpose and character of the use, proponents argue that for some car models,¹²⁰³ it is necessary to access the telematics software to engage in diagnosis, repair, and lawful modification of a vehicle function, and that this activity is transformative in the same way as accessing ECUs that control vehicle functions under the existing exemption.¹²⁰⁴ In cases where entertainment systems are integrated with other functional vehicle systems, proponents

¹²⁰² 37 C.F.R. § 201.40(b)(6) (2016); see Auto Care Class 7 Initial at 4–6; CTA Class 7 Initial at 5–6; Farmers Class 7 Initial at 6 (with respect only to mechanized agricultural equipment).

¹²⁰³ See Tr. at 59:22–60:09 (Apr. 25, 2018) (Wiens, iFixit) (Tesla); Tr. at 48:05–14 (Apr. 10, 2018) (Lowe, Auto Care) (BMW).

¹²⁰⁴ See Auto Care Class 7 Initial at 5 (noting a “growing trend of vehicle manufacturers restricting the amount of information available through the OBD port” such that “access to telematics capabilities will increasingly be necessary for diagnosis and for uploading software modifications, updates, and repairs” to vehicles); CTA Class 7 Initial at 3; Farmers Class 7 Initial at 9 & n.48 (accessing telematics for a “user’s repair of motor vehicles that involves the repair of functions that were previously controlled by mechanical or analog techniques” is a fair use).

contend that users should be permitted incidental access to make functional repairs.¹²⁰⁵ As to telematics systems, proponents argue that vehicle owners’ “access to [that] data about [their] own driving or [their] own vehicle would be an obvious fair use.”¹²⁰⁶

Opponents contend that the proposed activities are not favored under the first factor because access to entertainment and telematics systems could allow unauthorized access to expressive content. For example, Harman asserts that access to its integrated telematics and infotainment systems would enable unauthorized use of subscription services that access expressive content via the telematics system, such as SiriusXM.¹²⁰⁷ Similarly, Auto Alliance posits that the expansion could allow unauthorized access to “maps, databases of geographic data, and other navigational information.”¹²⁰⁸

In 2015, the Register concluded that diagnosis, repair, and modification of vehicle functioning were likely to be transformative uses where they could result in creation of new applications to facilitate diagnosis and repair, and to interoperate with different auto parts.¹²⁰⁹ Even where the new use “coincides generally with the original use,” the Register concluded the first factor may still favor “noncommercial and personal” uses that “enhance the intended use of ECU computer programs.”¹²¹⁰ The Office subsequently noted in its Software Study that repair may be a favored purpose when directed at preserving the functionality of a device.¹²¹¹

Upon the broader record in this rulemaking, the Acting Register finds that the same logic supports accessing the telematics system and, if necessary, incidentally accessing entertainment systems, strictly for purposes of diagnosis, repair, and lawful modification of vehicle functions (compared to entertainment functions). To be sure, accessing such systems with the object of accessing entertainment or expressive content without authorization would tip the first factor heavily against fair use. But the record now indicates that in some car models, and arguably to an increasing extent, it is becoming difficult for owners to obtain necessary diagnostic information through the onboard diagnostic port, requiring them to instead access this data from telematics

¹²⁰⁵ See EFF, Auto Care, Dorman, iFixit, SmarTeks & Repair.org Class 7 Post-Hearing Resp. at 5–10 (June 11, 2018); Tr. at 56:04–57:17 (Apr. 25, 2018) (Wiens, iFixit); Tr. at 43:12–45:08 (Apr. 10, 2018) (Kealey, Dorman); Tr. at 50:23–51:09 (Apr. 10, 2018) (Lowe, Auto Care).

¹²⁰⁶ Auto Care Class 7 Initial at 5.

¹²⁰⁷ Harman Class 7 Opp’n at 4–5; see also Auto Alliance Class 7 Post-Hearing Resp. at 1 (June 6, 2018); Harman Class 7 Post-Hearing Resp. at 1–4; Joint Creators II Class 7 Post-Hearing Resp. at 1 (June 11, 2018).

¹²⁰⁸ Auto Alliance Class 7 Opp’n at 10–11.

¹²⁰⁹ 2015 Recommendation at 234–35.

¹²¹⁰ *Id.*

¹²¹¹ Software Study at 40.

systems to proceed with repair activities.¹²¹² Testimony further indicated that in some cases, the “same computer” contains infotainment or entertainment systems.¹²¹³ The Acting Register recognizes the seriousness of opponents’ concerns regarding unauthorized access to content made available through such systems.¹²¹⁴ Those issues, however, relate primarily to the possibility that the proposed exemption could be abused, not to the purpose and character of the activities for which proponents seek an exemption. As under the current exemption, those activities would be strictly limited to “diagnosis, repair or lawful modification of a vehicle function,” and would not extend to circumvention for purposes of gaining unauthorized access to entertainment content.¹²¹⁵ With the proposed uses defined in this manner, the Acting Register concludes that the first factor weighs in favor of fair use. The Acting Register will consider opponents’ piracy-related concerns below in her discussion of the fourth fair use factor and the statutory factors under section 1201(a)(1)(C).

As to the second fair use factor, proponents do not present specific arguments concerning the nature of the software controlling either telematics or entertainment systems. Opponents do not dispute that the firmware on telematics systems itself is functional, although, as noted, they suggest that access to the telematics system implicates other expressive works including maps or compilations of geographic data.¹²¹⁶ Harman also objects to the characterization of infotainment system firmware as functional, offering examples of vehicle entertainment system features such as “augmented reality,” “virtual personal assistance,” and integrated music and audiovisual works.¹²¹⁷

The second factor “calls for recognition that some works are closer to the core of intended copyright protection than others, with the consequence that fair use is more difficult to establish when the former works are copied.”¹²¹⁸ The Register previously concluded that “vehicle software is not especially ‘expressive’; it is not meant to be

¹²¹² See Auto Care Class 7 Initial at 5; CTA Class 7 Initial at 3; Tr. at 46:14–48:14 (Apr. 10, 2018) (Lowe, Auto Care).

¹²¹³ Tr. at 56:04–57:17 (Apr. 25, 2018) (Wiens, iFixit); see also EFF, Auto Care, Dorman, iFixit, SmarTeks & Repair.org Class 7 Post-Hearing Resp. at 5–10 (June 11, 2018); Tr. at 69:17–70:22 (Apr. 10, 2018) (Lowe, Auto Care).

¹²¹⁴ Cf. 2015 Recommendation at 235.

¹²¹⁵ 37 C.F.R. § 201.40(b)(6) (2016).

¹²¹⁶ Auto Alliance Class 7 Opp’n at 10.

¹²¹⁷ Harman Class 7 Post-Hearing Resp. at 2.

¹²¹⁸ *Campbell*, 510 U.S. at 586 (citing examples of factual works as further removed from the core of copyright protection).

consumed as a creative work,” but rather “to operate a device.”¹²¹⁹ Here, at least some aspects of the telematics software are functional works.¹²²⁰ But other software at issue contains integrated expressive content that is further attenuated from vehicle functionality, which would disfavor fair use. Overall, this factor is mixed.

Regarding the third factor, participants do not squarely address the amount and substantiality of the work used. It appears that in some cases it may be necessary to use vehicle computer programs in their entirety to achieve a legitimate purpose, and courts have held that the third factor does not necessarily weigh against fair use in such circumstances.¹²²¹ Ultimately, the Acting Register gives this factor little weight.

As to the fourth factor, proponents assert that vehicle firmware is “effectively useless” outside of the vehicle, with essentially no separate market for the software apart from the vehicles.¹²²² Opponents contend that “[t]elematics and entertainment software often interact with servers outside the vehicle, have value apart from the vehicle, are often sold separately from the vehicle, and may be paid for subsequent to . . . purchase of the vehicle.”¹²²³

The fourth factor requires the Office to consider “not only the extent of market harm caused by the particular actions of the alleged infringer, but also ‘whether unrestricted and widespread conduct of the sort engaged in by the [user] . . . would result in a substantially adverse impact on the potential market.’”¹²²⁴ In 2015, the Office concluded that “computer programs on the majority of ECUs are only meaningful in connection with the vehicle, that the copies are generally sold only with the vehicle, and that the consumer pays for those copies when purchasing the vehicle.”¹²²⁵ Here, the record indicates that certain telematics and entertainment software can have independent

¹²¹⁹ 2015 Recommendation at 235; *see Oracle*, 886 F.3d at 1204–05 (finding it reasonable that “functional considerations [of software] were substantial and important” in favoring fair use under the second factor); *Connectix*, 203 F.3d at 603–05 (finding the second factor favored fair use where entire operating system was copied to study and use functional elements of software).

¹²²⁰ *See* 2015 Recommendation at 235 (vehicle ECUs); 2012 Recommendation at 73 (smartphones).

¹²²¹ *See HathiTrust*, 755 F.3d at 98–99; *Arriba Soft*, 336 F.3d at 820–21; *Connectix*, 203 F.3d at 603–06; *cf.* EFF, ORI & ASCDI Class 7 Initial at 9 (discussing the necessity of accessing and copying the entire firmware of a device to understand its functionality).

¹²²² Tr. at 25:11–22 (Apr. 10, 2018) (Kealey, Dorman).

¹²²³ Auto Alliance Class 7 Opp’n at 11–12 (describing how GM’s OnStar and Mercedes-Benz’s embrace entertainment and shopping services have “meaningful value apart from the vehicle”); *see also* Harman Class 7 Opp’n at 4 (expressing concern about reproduction and sale of its telematics source code on the black market).

¹²²⁴ *Campbell*, 510 U.S. at 590 (citation omitted).

¹²²⁵ 2015 Recommendation at 236.

value, and may be accessed through subscription services. But while the accessing of subscription-based software presents a more complex question, this does not appear to be the thrust of proponents' aim; rather, their testimony is focused on accessing these ECUs strictly to diagnose or repair the functioning of a vehicle.¹²²⁶ As the Office explained in its Software Study, where programs have no value apart from the devices that they operate, repairing these programs is not likely to interfere with any market likely to be exploited by the copyright owner.¹²²⁷ Setting aside instances where software may be accessed through a separate subscription, the same rationale seemingly applies to the diagnosis, repair, and lawful modification of vehicles where it is necessary to access the telematics or, incidentally, the entertainment ECUs for those activities.

Overall, when considering circumvention as "a necessary step undertaken . . . to allow the diagnosis, repair or lawful modification of a vehicle function,"¹²²⁸ the Acting Register finds this limiting purpose to be an important factor in her ultimate conclusion that such activities are likely to be a fair use. To the extent opponents, particularly Harmon, have raised concerns about unauthorized uses of telematics software, obtaining unauthorized access to subscription services for entertainment content, or other unauthorized activities that jeopardize protection of copyrighted works, those are serious issues, and such activities should be expressly excluded from the scope of the exemption.

Other activities. Proponents also suggest users should be permitted to access "storage capacity" in vehicle entertainment systems for noninfringing uses¹²²⁹ and to replace or repair entertainment modules.¹²³⁰ Auto Care and CTA cite *Sony Corp. of America v. Universal City Studios, Inc.*¹²³¹ for the broad proposition that the "ability to receive copied content—which is all that circumvention of access to an entertainment system would do—is not itself an infringement of copyright."¹²³² In addition, proponents imply that use of "storage capacity" in a vehicle entertainment system to space-shift "entertainment content [that] the consumer owned or created or personal photographs" would not impact the market for copyrighted works.¹²³³ Opponents respond that *Sony* is inapposite. In their view, as a case addressing the fair use of home "time-shifted"

¹²²⁶ See Tr. 48:05–14 (Apr. 10, 2018) (Lowe, Auto Care) (commenting that moving diagnostic data to the telematics system would inhibit the ability to repair functional parts, such as the brake module); Tr. 68:04–70:22 (Apr. 10, 2018) (Band, ORI; Lowe, Auto Care).

¹²²⁷ Software Study at 41.

¹²²⁸ 37 C.F.R. § 201.40(b)(6) (2016).

¹²²⁹ See Auto Care Class 7 Initial at 5–6; CTA Class 7 Reply at 4–5; Farmers Class 7 Initial at 9 n.48.

¹²³⁰ See Tr. at 43:12–45:05–08 (Apr. 10, 2018) (Kealey, Dorman).

¹²³¹ 464 U.S. 417 (1984).

¹²³² Auto Care & CTA Class 7 Pet. at 3–4.

¹²³³ See Auto Care Class 7 Initial at 5–6.

recorded content, *Sony* does not stand for the broader proposition that “space-shifting” is a fair use or that there exists an unfettered right to transfer and store copyrighted works.¹²³⁴

In previous rulemakings, as well as in the Class 3 discussion above, the Office has consistently found insufficient legal authority to support the claim that space-shifting activity, generally, is likely to constitute fair use.¹²³⁵ For similar reasons, the Acting Register cannot find that this proposed activity is likely to be fair.

Finally, there was a brief discussion, following the close of written comments, regarding the need to repair vehicle infotainment/entertainment systems themselves.¹²³⁶ Given the sparse record, and particularly in light of opponents’ countervailing concerns about unauthorized access to copyrighted content,¹²³⁷ there is insufficient information for the Acting Register to evaluate whether repair of these systems is likely noninfringing under the same analysis and if so, whether such activity is adversely affected by section 1201.

2) Section 117

Proponents contend that making copies and adaptations is an essential step in lawful diagnosis, repair, and modification, and therefore those activities are noninfringing under section 117.¹²³⁸ Section 117(a)(1) is a limited exemption for an “owner of a copy of a computer program,”¹²³⁹ and the inquiry into whether an individual qualifies as an “owner” is fact-intensive.¹²⁴⁰ Without putting forward specific facts regarding whether

¹²³⁴ See Harman Class 7 Opp’n at 5, 7–8; Joint Creators II Class 7 Opp’n at 8 n.3.

¹²³⁵ See 2015 Recommendation at 108, 121–24; 2012 Recommendation 162–65; 2006 Recommendation at 60, 69–72, 80–83; 2003 Recommendation at 130–31, 137–38.

¹²³⁶ See Auto Care & Dorman Class 7 *Ex Parte* Meeting Summary at 2–3 (Sept. 6, 2018); Tr. at 42:03–45:14 (Apr. 10, 2018) (Kealey, Dorman) (discussing configuration of infotainment systems and Dorman’s interest in repairing infotainment modules).

¹²³⁷ See also 2015 Recommendation at 235 (noting that “[a]ccess controls on entertainment system ECUs not only preserve the integrity of the ECU itself, but also protect the content that is played through the entertainment system”).

¹²³⁸ See EFF, ORI & ASCDI Class 7 Initial at 10; EFF, ORI & ASCDI Class 7 Reply at 2.

¹²³⁹ 17 U.S.C. § 117(a)(1). While section 117(c) is directed at purposes of maintenance and repair, it authorizes making copies only upon “activation” of a machine, which may be why proponents generally relied upon 117(a)(1), which permits a broader range of activities.

¹²⁴⁰ See *Krause v. Titleserv, Inc.*, 402 F.3d 119 (2d Cir. 2005); *Vernor v. Autodesk, Inc.*, 621 F.3d 1102 (9th Cir. 2010). In *Krause*, the Second Circuit directed courts to look at whether there were sufficient incidents of ownership by considering: (1) whether substantial consideration was paid for the copy; (2) whether the copy was created for the sole benefit of the purchaser; (3) whether the copy was customized to serve the purchaser’s use; (4) whether the copy was stored on property owned by the purchaser; (5) whether the creator reserved the right to repossess the

vehicle telematics or entertainment software is likely owned, eBay argues that recalibrating vehicle software would be covered under section 117, if the Acting Register in fact concludes that the purchaser of the vehicle is also the owner of the vehicle software.¹²⁴¹ MEMA, with a tailored focus on third-party service providers, asserts that the diagnosis, repair, or modification of software on vehicles by such providers “and similar services are expressly authorized under [s]ection 117.”¹²⁴²

In opposition, Auto Alliance argues that proponents have not demonstrated that an owner of a vehicle is also the owner of copies of telematics and entertainment software under section 117(a).¹²⁴³ It asserts: “Many telematics and entertainment systems are subject to license agreements that clearly show the user does not own the copyrighted software. Based on these license agreements, the Copyright Office in 2015 concluded that users may not own the computer programs that operate vehicle entertainment or telematics systems.”¹²⁴⁴ Even if the existence of such license agreements is not dispositive, Auto Alliance concludes, “proponents have not submitted any evidence to rebut this conclusion.”¹²⁴⁵

Auto Alliance is correct that the 2015 record included license agreements for telematics and entertainment system software in motor vehicles.¹²⁴⁶ Proponents have not supplemented the record to support the proposition that the owner of a vehicle also owns copies of that vehicle’s telematics or entertainment software. Instead, opponents again attest that this software is likely to be licensed, including via subscriptions.¹²⁴⁷ Therefore, the evidence overall again suggests that vehicle owners may more properly be considered lessees of at least some telematics and entertainment system software. The Acting Register concludes that, on the current record, section 117(a)(1) does not cover these proposed uses.

copy; (6) whether the creator agreed that the purchaser had the right to possess and use the programs forever regardless of whether the relationship between the parties terminated; and (7) whether the purchaser was free to discard or destroy the copy anytime it wished. 402 F.3d at 124. In *Vernor*, the Ninth Circuit held that “a software user is a licensee rather than an owner of a copy where the copyright owner (1) specifies that the user is granted a license; (2) significantly restricts the user’s ability to transfer the software; and (3) imposes notable use restrictions. 621 F.3d at 1111.

¹²⁴¹ eBay Class 7 Reply at 3.

¹²⁴² MEMA Class 7 Reply at 2–3; *see also* MEMA Class 7 Initial at 3.

¹²⁴³ Auto Alliance Class 7 Opp’n at 11.

¹²⁴⁴ *Id.* (citing 2015 Recommendation at 238).

¹²⁴⁵ *Id.*

¹²⁴⁶ 2015 Recommendation at 238.

¹²⁴⁷ *See, e.g.,* Auto Alliance Class 7 Opp’n at 11–12.

ii. *Other Devices*

Commenters seeking an expansion to allow diagnosis, repair, and modification of devices outside the context of motorized land vehicles suggest that these activities are noninfringing under the fair use doctrine and section 117. As explained above, the following analysis considers these arguments in the context of those types of devices cognizably reflected in the record to varying degrees, namely home appliances, smartphones, video game consoles, computers and ancillary or peripheral computing devices, and consumables, plus a few examples of specific modified devices.

1) *Fair Use*

Following the path of the recent Section 1201 Report, this recommendation considers first repair and diagnostic activities, and then modification. Based on the factual allegations surfaced in the comments, the Acting Register further isolates specific issues with respect to video game consoles and consumables. Finally, when considering this expansion, the written comments and testimony focused on a desire to repair or modify the firmware embedded in these devices or to repair a functional component controlled by the firmware¹²⁴⁸—as opposed to, for example, an app loaded on a device—and the following analysis reflects this limitation as well.

Diagnosis, repair, and maintenance, generally. Under the first fair use factor, proponents contend generally that these activities are favored because they are transformative and promote research to “understand the functional aspects of a copyrighted work.”¹²⁴⁹ In opposition, Joint Creators II state that “[r]epair typically involves copying or adapting a work to cause the work to perform the same purpose it was originally intended to perform. That is not a transformative use.”¹²⁵⁰ They further claim that “exposing expressive works to unauthorized access causes the first factor to weigh against fair use.”¹²⁵¹ Finally, Joint Creators II urge the Acting Register, if she recommends an

¹²⁴⁸ See, e.g., Consumers Union Class 7 Initial at 2 (addressing “software that enables and governs—and restricts—the functioning of everyday consumer products in which it is embedded”); EFF, ORI & ASCDI Class 7 Initial at 3–10 (asserting fair uses of firmware on various devices); Tr. at 37:26–38:17 (Apr. 25, 2018) (Walsh, EFF; Wiens, iFixit) (asserting that there is no market for firmware tied to a particular device); Tr. at 96:07–15 (Apr. 10, 2018) (Shore, ASCDI) (describing issues of accessing firmware to repair devices).

¹²⁴⁹ EFF, ORI & ASCDI Class 7 Initial at 8.

¹²⁵⁰ Joint Creators II Class 7 Opp’n at 8 (citing *Wall Data Inc. v. L.A. Cty. Sheriff’s Dep’t*, 447 F.3d 769, 778 (9th Cir. 2006)).

¹²⁵¹ *Id.*

expansion related to repair, to incorporate the definition of repair as provided by section 117(d)(2).¹²⁵²

In analyzing the first fair use factor, the Acting Register notes that the Copyright Office’s Software Study observed that, because the fundamental purpose of repair is to restore the functionality of a device so that it may be used, “repair supports—rather than displaces—the purpose of the embedded programs.”¹²⁵³ Applying similar logic, the 2015 rulemaking concluded that the first factor favored an exemption for vehicle repair because the activities were personal, noncommercial, and would “enhance the intended use” of the vehicle programs.¹²⁵⁴ Moreover, the Office’s Section 1201 Report observed an emerging “general understanding that bona fide repair and maintenance activities are typically noninfringing.”¹²⁵⁵ Because proponents express the same desire to engage in these bona fide repair activities with respect to other devices, the Acting Register concludes that this factor favors proponents.

Regarding the second factor, proponents assert that the nature of the work favors fair use because device firmware is primarily functional in nature.¹²⁵⁶ Proponents state that software code used as a “lockout” to restrict access to a device “bears only a thin copyright interest that is overcome by the need to use that code for interoperability.”¹²⁵⁷ But ESA contends that “even if some elements of the console firmware are considered functional, the games, motion pictures and other works that are protected by the firmware are highly expressive.”¹²⁵⁸

As noted above, courts have found that this factor favors fair use where the relevant work is functional software.¹²⁵⁹ Here, it appears that the participants may agree that the works at issue are device firmware, and that this firmware is primarily functional. While specific concerns with respect to access to video game consoles and other conduits to highly expressive works are addressed below, the proposed uses are not to access these other expressive works, but rather to diagnose or repair the computer programs

¹²⁵² Joint Creators Class 7 Opp’n at 5; see 17 U.S.C. 117(d)(2) (“the ‘repair’ of a machine is the restoring of the machine to the state of working in accordance with its original specifications and any changes to those specifications authorized for that machine”).

¹²⁵³ Software Study at 38-41.

¹²⁵⁴ 2015 Recommendation at 234-37.

¹²⁵⁵ Section 1201 Report at 90.

¹²⁵⁶ EFF, ORI & ASCDI Class 7 Initial at 9; Tr. at 37:05-10 (Apr. 25, 2018) (Walsh, EFF).

¹²⁵⁷ EFF, ORI & ASCDI Class 7 Initial at 8-9 (citing *Static Control Components, Inc. v. Lexmark Int’l, Inc.*, Nos. Civ.A. 02-571, Civ.A. 04-84, 2007 WL 1485770, at *5 (E.D. Ky. Apr. 18, 2007)).

¹²⁵⁸ ESA Class 7 Opp’n at 8.

¹²⁵⁹ See *Oracle*, 886 F.3d at 1204-05; *Connectix*, 203 F.3d at 603-05; see also 2015 Recommendation at 235; 2012 Recommendation at 73.

that control the functioning of devices in which they are embedded. Accordingly, the Acting Register finds that this factor favors fair use.

Regarding the third factor, commenters do not squarely address the amount and substantiality of the work used in relation to the fair use analysis.¹²⁶⁰ As noted, the fact that the entirety of the work is used is not dispositive, as courts have permitted such uses where necessary to achieve a transformative purpose.¹²⁶¹ Indeed, in 2015, the Register noted that although most of the proposed activity would involve reproducing copyrighted programs in their entirety, this factor should be given little weight because the copying was necessary to accomplish a transformative purpose.¹²⁶² The Acting Register finds the same conclusion sound here.

Considering the fourth factor, proponents comment that because firmware is tied to a particular device, it has no independent commercial value.¹²⁶³ But opponents submit that “the fourth factor analysis for repair with respect to many devices will weigh against fair use.”¹²⁶⁴ Opponents’ comments are specifically directed to devices, including video game consoles, where the “software . . . is intended to prevent piracy.”¹²⁶⁵ Opponents suggest that once the firmware on these devices is accessed, even for repair, it is compromised such that it can no longer prevent piracy and consequently, these uses diminish the value of and market for the devices and other creative works.¹²⁶⁶

In 2015, the Register concluded that computer programs in vehicles are valuable only in connection with the vehicle and that no independent market for vehicle software exists.¹²⁶⁷ Similarly, in the Software Study, the Office focused on whether “these types of computer programs” were “distributed as standalone works,” concluding that where

¹²⁶⁰ ESA does state that “virtually all of the hacks for video game consoles use nearly all of the code contained within the copyrighted computer programs,” but it was not clear if the word “hacks” refers to diagnosis and repair activities. ESA Class 7 Opp’n at 8. Either way, this does not change the Acting Register’s conclusion.

¹²⁶¹ See *HathiTrust*, 755 F.3d at 98–99; *Arriba Soft*, 336 F.3d at 820–21; *Connectix*, 203 F.3d at 603–06.

¹²⁶² See 2015 Recommendation at 235–36.

¹²⁶³ See EFF Class 7 Initial at 10 (“In the case of device firmware, the copyrighted work is sold to end-users along with an entire device.”); Tr. at 37:26–38:17 (Apr. 25, 2018) (Walsh, EFF; Wiens, iFixit) (“[I]t’s very unlikely that there’s going to be market substitution as a result of these works where the work’s utility and market value is connected to a physical device”).

¹²⁶⁴ Joint Creators II Class 7 Opp’n at 9.

¹²⁶⁵ *Id.*

¹²⁶⁶ ESA Class 7 Opp’n at 8; Joint Creators Class 7 Opp’n at 9; see also DVD CCA & AACSLA Class 7 Opp’n at 4; DVD CCA & AACSLA Class 7 Post-Hearing Resp. at 2 (June 11, 2018); Joint Creators II Class 7 Class 7 Post-Hearing Resp. at 2 (June 11, 2018).

¹²⁶⁷ See 2015 Recommendation at 236.

programs have no separable value, “repairing these programs is not likely to interfere with any market likely exploited by the copyright owner.”¹²⁶⁸ Now, the Acting Register must consider the fourth factor in relation to the current record, for the enumerated categories of specific devices raised above. Apart from gaming consoles (discussed further below), the record seems to indicate that the TPMs at issue are generally restricting access to the device firmware, and not to other expressive works.¹²⁶⁹ Further, in the case of smartphones specifically, although these devices can no doubt be used to consume expressive works, previous rulemakings have concluded that the firmware on smartphones is unlikely to have a significant independent market that can be harmed.¹²⁷⁰ Thus, the Acting Register follows the conclusions of the 2015 rulemaking and the Software Study, and does not find that this factor disfavors the expanded exemption.

Repair of video game consoles, specifically. Proponents contend that the same analysis should hold with respect to video game consoles.¹²⁷¹ Opponents, however, express concern that circumvention of TPMs on video game consoles creates risk of unauthorized access to content and piracy, because the TPMs also protect access to the games themselves.¹²⁷² Opponents claim that, even if circumvention were for legitimate repair, once TPMs are circumvented, it is questionable that they could be restored.¹²⁷³ Further, ESA states that circumvention could result in a console being “unable to run properly licensed content.”¹²⁷⁴ They contend that these unique concerns militate against a fair use finding with respect to the first and fourth factors.

Opponents also claim the second and third factors disfavor fair use. They argue that video game console firmware “contains elements protected by copyright and, even if some elements of the console firmware are considered functional, the games, motion pictures and other works that are protected by the firmware are highly expressive.”¹²⁷⁵

¹²⁶⁸ Software Study at 41.

¹²⁶⁹ See, e.g., EFF, ORI & ASCDI Class 7 Initial at 3–10; Tr. at 37:26–38:17 (Apr. 25, 2018) (Walsh, EFF; Wiens, iFixit); Tr. at 96:07–15 (Apr. 10, 2018) (Shore, ASCDI).

¹²⁷⁰ See 2015 Recommendation at 163–64; 2012 Recommendation at 73–74; 2010 Recommendation at 97–100.

¹²⁷¹ See EFF, ORI & ASCDI Class 7 Initial at 10, 13.

¹²⁷² ESA Class 7 Opp’n at 2–5, 7–8 (noting that in both the 2012 and 2015 Recommendations, the Register “concluded that there is a strong link between console jailbreaking and piracy”); Tr. 15:04–25 (Apr. 25, 2018) (Williams, Joint Creators II); Tr. at 65:15–22 (Apr. 10, 2018) (Williams, Joint Creators II) (commenting that TPMs effectively ensure legitimate copies are played, whether a physical copy or in the cloud).

¹²⁷³ ESA Class 7 Opp’n at 5 (noting that “TPMs cease to serve their protective function once circumvented”); Tr. at 20:16–23:10 (Apr. 25, 2018) (Williams, Joint Creators II).

¹²⁷⁴ ESA Class 7 Opp’n at 5.

¹²⁷⁵ *Id.* at 8.

They also contend that the “amount and substantiality of the portion used is not reasonable, because virtually all of the hacks used for video game consoles use nearly all of the code contained within the copyrighted computer programs.”¹²⁷⁶

In multiple past rulemakings, the Office has rejected proposed jailbreaking exemptions for video game consoles—including passing suggestions of the need to repair these consoles—because of the potential harm to the market.¹²⁷⁷ For example, in 2012, the Register stated that:

[O]pponents have provided compelling, uncontradicted evidence that circumvention of access controls to permit interoperability of video game consoles—regardless of purpose—has the effect of diminishing the value of, and impairing the market for, the affected code, because the compromised code can no longer serve as a secure platform for the development and distribution of legitimate content.¹²⁷⁸

This rulemaking reflects similar console-specific concerns about potential market harm. Proponents have not provided a persuasive legal or factual analysis why the Acting Register should reach a different conclusion than in 2012 or 2015, and so she does not.

Modification, generally. EFF, which focuses most of its arguments on the importance of modification, argues that “[m]odifying device software in order to enable new uses is the essence of a transformative use under the fair use doctrine.”¹²⁷⁹ ORI states that in many cases the modification of a device’s functionality is the intended use (compared to an intention to modify the copyrighted work), though modification of the software may be necessary for that purpose.¹²⁸⁰ EFF provides a handful of examples, including modifying a two-way radio to serve as a scanner to listen in on private talk groups and calls, jailbreaking the PlayStation 3 to run “software of [users’] choice,” and modifying the Sony Aibo robotic dog to teach it “to dance, speak, obey wireless commands, and even share the video used for Aibo’s vision.”¹²⁸¹ From a legal basis, EFF relies upon two

¹²⁷⁶ *Id.*

¹²⁷⁷ 2015 Recommendation at 199–201; 2012 Recommendation at 42–44, 47.

¹²⁷⁸ 2012 Recommendation at 44.

¹²⁷⁹ EFF Class 7 Reply at 5; *see also* Tr. at 37:11–19 (Apr. 25, 2018) (Walsh, EFF).

¹²⁸⁰ *See* Tr. at 100:03–17 (Apr. 10, 2018) (Band, ORI) (stating that “a lot of times what we’re really trying to do is modify the device. But . . . to modify the device, you might need to modify the software”).

¹²⁸¹ EFF, ORI & ASCDI Class 7 Initial at 3–6.

Ninth Circuit cases, *Sega v. Accolade*¹²⁸² and *Sony v. Connectix*,¹²⁸³ for the proposition that “enabling interoperability and increasing the utility of hardware are fair uses.”¹²⁸⁴

In response, opponents cite to the Copyright Office’s Section 1201 Report concerning the challenges of defining “modification” and “tinkering” in such a way that would permit these activities without implicating the exclusive right to prepare derivative works.¹²⁸⁵ Opponents warn that user modifications may affect the market for future modifications to device software made and sold by the manufacturer.¹²⁸⁶ They also argue that the term “tinkering” could include accessing highly expressive content and unlawfully modifying that content.¹²⁸⁷ Opponents suggest that the Federal Circuit’s recent decision in *Oracle America, Inc. v. Google, Inc.*¹²⁸⁸ diminishes the weight of the cases cited by proponents concerning transformative use, noting that the *Oracle* court held that verbatim copying for purposes of interoperability was only “moderately transformative activity.”¹²⁸⁹

In analyzing whether “modification” is likely to be noninfringing, the first hurdle is definitional. As the Section 1201 Report concluded, proponents “have suggested no reliable way to define with any precision a category of lawful adaptations, generally, for purposes of section 1201.”¹²⁹⁰ While the existing exemption allows “lawful modification of a vehicle function,”¹²⁹¹ the proposal for other devices is broader, seemingly encompassing any modification in connection with a device.¹²⁹² In some cases, where a user seeks to modify only a functional element of a device for a personal, noncommercial use, that activity may well qualify as a fair use. In other cases, however, a modification under the proposed exemption may result in an infringing derivative work. Indeed, the statutory definition of “derivative work” requires an underlying work to “be recast, transformed, or adapted,”¹²⁹³ and at the hearings proponents appeared to acknowledge that at least some of the modifications they describe in their

¹²⁸² 977 F.2d at 1522–23.

¹²⁸³ 203 F.3d at 608.

¹²⁸⁴ EFF, ORI & ASCDI Class 7 Initial at 8.

¹²⁸⁵ See Joint Creators II Opp’n at 9–10 (citing Section 1201 Report at 96–97).

¹²⁸⁶ See Tr. at 38:22–40:25 (Apr. 25, 2018) (Williams, Joint Creators II).

¹²⁸⁷ See Joint Creators II Opp’n at 9–10.

¹²⁸⁸ 886 F.3d at 1199–202.

¹²⁸⁹ Tr. at 40:08–25 (Apr. 25, 2018) (Williams, Joint Creators II).

¹²⁹⁰ Section 1201 Report at 96–97.

¹²⁹¹ 37 C.F.R. § 201.40(b)(6) (2016) (emphasis added).

¹²⁹² EFF, Auto Care, Dorman, iFixit, SmarTeks & Repair.org Class 7 Post-Hearing Resp. at 10 (June 11, 2018).

¹²⁹³ 17 U.S.C. § 101.

comments could implicate that right.¹²⁹⁴ And the proposed class includes commercializing these modifications insofar as the same proponents also stress the need for third-party assistance. Moreover, it is not clear that the two cases cited by proponents go so far as to support the broader range of activities envisioned by the proposal.¹²⁹⁵

Thus, the Acting Register does not conclude that modification of a function of a device as a general category is likely to be noninfringing. As the Office has repeatedly stated, “there is no ‘rule of doubt’ favoring an exemption when it is unclear whether a particular use is a fair use.”¹²⁹⁶ Because “modification” has not been defined with sufficient precision here, the Acting Register declines to find that this aspect of the proposed expansion is likely to be a fair use.

Modification of consumables, specifically. In contrast, the several examples regarding the desire to modify consumable devices described by proponents seem to share a more definable set of commonalities. Proponents’ concern here is that device owners are locked into using a manufacturer’s replacement cartridges and are unable to use competitive consumable cartridges without modifying their devices.¹²⁹⁷ In this case, the purpose of the modification is to make the device accept non-manufacturer-approved component parts. Opponents did not specifically oppose the inclusion of devices involving consumables, other than in their broad opposition to exempting any device that would provide access to expressive works, and in their concern that the evidence for an expanded exemption was generally insufficient.

The Acting Register notes there are some parallels between this proposal and the existing exemption for 3D printers to enable the use of non-manufacturer-approved feedstock.¹²⁹⁸ Moreover, the proposed modifications are limited to developing interoperability between products, a use the Office has acknowledged in prior

¹²⁹⁴ See Tr. at 41:01–17 (Apr. 25, 2018) (Walsh, EFF) (suggesting opponents’ specific objections to robotic dogs and video game consoles should not undermine proponents’ broader fair use analysis); Tr. at 76:01–04 (Apr. 10, 2018) (Band, ORI) (noting that modification of robotic dog “could be creating a derivative work, and that would be non-infringing and that would not be permitted”); see also 2015 Recommendation at 200; 2012 Recommendation at 39–44 (declining to recommend exemption for jailbreaking gaming consoles).

¹²⁹⁵ EFF, ORI & ASCDI Class 7 Initial at 8 (citing *Sega*, 977 F.2d at 1514–17, and *Connectix*, 203 F.3d at 598–601 both of which analyzed reverse engineering, specifically).

¹²⁹⁶ 2015 Recommendation at 15; 2012 Recommendation at 7; 2010 Recommendation at 11–12.

¹²⁹⁷ See EFF, ORI & ASCDI Class 7 Initial at 5–6; Tr. at 18:01–07 (Apr. 25, 2018) (Walsh, EFF). Proponents identified a similar concern with respect to replacing smart light bulbs. EFF, ORI & ASCDI Class 7 Initial at 3.

¹²⁹⁸ See 2015 Recommendation at 356–77.

rulemakings is likely fair.¹²⁹⁹ As the Section 1201 Report noted, Congress did not intend that “section 1201 would serve as a sword to inhibit market entrants from offering competing consumer products.”¹³⁰⁰ Therefore, while the record remains sparse concerning whether there are TPMs protecting copyrighted works that effectively prevent the desired uses of these products, to the extent those elements are present, the Acting Register concludes that the uses, on balance, are likely to be noninfringing. As noted above, however, this does not end the inquiry. Proponents still must establish that the prohibition on circumvention is likely to cause an adverse effect on users’ ability to engage in these uses. The Acting Register addresses that issue below.

Further, in some cases, a regulatory exemption may not be necessary, as the Copyright Office has noted that section 1201(f) should be available to insulate circumvention activities undertaken for the purpose of achieving interoperability of a computer program with other programs.¹³⁰¹ As the Section 1201 Report explains, section 1201(f) largely codified the holding of *Sega* that proponents primarily rely on in seeking an exemption for interoperability uses.

2) Section 117

Proponents also assert that the proposed uses of computer programs on software-enabled devices are noninfringing under section 117. To start, they state that the owners of these devices typically own the copy of the software embedded within them.¹³⁰² They suggest section 1201 should not be interpreted in a way that divests consumers of these traditional expectations of ownership. In contrast to the discussion regarding telematics and entertainment ECUs, and with the exception of video game consoles, opponents do not dispute that owners of the devices at issue here generally own the copy of the firmware on those devices.

In its Software Study, the Copyright Office noted that the question of ownership “can be complex” with regard to embedded software, in part depending upon the nature of consideration paid for the software as part of the transaction. The Office noted that the acquisition of specialized software like programs controlling the function of windshield wipers may be “essentially invisible to the consumer” of a purchased automobile,

¹²⁹⁹ See, e.g., *id.* at 162 (discussing smartphone unlocking and noting “interoperability is favored under the law”).

¹³⁰⁰ Section 1201 Report at 48.

¹³⁰¹ See *id.* at 67–71 (discussing *Sega* and 17 U.S.C. § 1201(f)). See generally 17 U.S.C. § 1201(f).

¹³⁰² See Tr. at 54:04–07 (Apr. 25, 2018) (Wiens, iFixit) (suggesting that the “overwhelming majority of products have no license—that have software in them, have no license agreement associated with them”); Tr. at 51:23–52:08 (Apr. 25, 2018) (Walsh, EFF) (arguing that “even if there is [an end-user license agreement] in place, the person who owns the device is typically also the owner of that copy of the software”).

whereas “operating system software in a personal computer” will play a more significant element in the transaction, and may well be licensed.¹³⁰³ Previously the Register found it likely that “some subset” of owners of wireless devices, including smartphones, likely own the copy of the device software.¹³⁰⁴ Based on the limited record, the same logic might extend to devices like home appliances, as well as some subset of the other categories such as consumables. For video game consoles, commenters dispute whether owners of the console also own the copy of device firmware, and the record lacks sufficient evidence to resolve that issue either way.¹³⁰⁵ Thus it appears that some, but not all, devices may involve ownership of copies of the software within the meaning of section 117(a).

The next requirement under 117(a)(1) is that reproduction or adaptation of the computer program be an “essential step in the utilization of the program in conjunction with a machine,” and the copy is used in no other manner.¹³⁰⁶ Opponents argue that section 117 does not cover various activities proposed by proponents, with Joint Creators II stating that proponents “fail[] to establish that the copying and adaptation involved in repairing devices used to access expressive works is a noninfringing use. Section 117 is limited in scope and would not apply to all repair activities.”¹³⁰⁷

The Copyright Office has previously noted that “[i]f the embedded software copy is owned, section 117(a) provides broad protections” for a range of activities.¹³⁰⁸ While it is true this range has limits, many of the examples provided by proponents may qualify under section 117(a)(1) as they are directed at copying or adapting the computer program to enable the continued operation of the machine. For example, Mr. Wiens testified that it is necessary to circumvent a TPM to replace an iPhone home button.¹³⁰⁹ Similarly, he described the growing utilization of TPMs in devices by manufacturers of

¹³⁰³ Software Study at 36.

¹³⁰⁴ 2015 Recommendation at 161–62 (internal quotation marks omitted) (relying also on the Unlocking Act § 2(c), 128 Stat. at 1751–52, as demonstrating congressional intent that “device owners be entitled to engage in circumvention independent of the question of legal ownership of device software”); 2012 Recommendation at 93.

¹³⁰⁵ *Compare* Tr. 22:08–17; 52:20–06 (Apr. 25, 2018) (Williams, Joint Creators II) (suggesting console owners do not own the copy of the firmware), *with* Tr. at 53:07–12 (Apr. 25, 2018) (Walsh, EFF) (suggesting console owners are free to resell and dispose of consoles, including installed software, and no obligation to return to manufacturer).

¹³⁰⁶ 17 U.S.C. § 117(a)(1).

¹³⁰⁷ Joint Creators Class 7 Opp’n at 8.

¹³⁰⁸ Software Study at 36 (further noting that “section 117(a) has been interpreted to permit a broad range of activities, including fixing bugs, transferring programs to a new operating system, and adding new features to make the software more useful to its owner”).

¹³⁰⁹ Tr. at 33:11–16 (Apr. 25, 2018) (Wiens, iFixit).

home appliances and the corresponding rise in need for users to circumvent TPMs to repair those devices.¹³¹⁰ The Acting Register concludes that these types of functional corrections or improvements likely qualify as noninfringing under section 117(a)(1).¹³¹¹ In addition, if the ownership criteria were met, section 117(a)(1) would seem to permit some (but not all) of the modification examples given, including modifying lighting system firmware to pair with third-party lightbulbs or debugging.¹³¹² But again, following two policy studies where the Copyright Office concluded respectively that section 117 is fact-dependent and that there was no consensus regarding the meaning of lawful modification,¹³¹³ the Acting Register declines to extrapolate from briefly sketched statements to conclude more definitively as to whether the class of modifications sought in this exemption are likely noninfringing.

In sum, the Acting Register concludes that some of the proposed uses—including some involving owned smartphones and home appliances—are likely to be noninfringing under section 117. As stated above, however, there is no “rule of doubt” favoring an exemption when it is unclear that a particular use is noninfringing.¹³¹⁴ Because the record lacks sufficient evidence regarding ownership of other devices, or a working understanding of the types of modification sought, the Acting Register does not have adequate information to determine whether the full range of requested activities may fall within the scope of permissible uses under section 117(a)(1).

d. Causation

The Acting Register finds that the record shows that the current qualifying language “except for computer programs primarily designed for the control of telematics or entertainment systems for such vehicle” limits the ability of owners to engage in the diagnosis, repair, or lawful modification of a vehicle function as described above. Additionally, the Acting Register finds that the record shows that the statutory prohibition on circumvention of access controls limits participants’ ability to engage in diagnosis and repair of home appliances and smartphones. But for the prohibition, users likely could gain lawful access to the copyrighted firmware for those purposes.

With respect to consumables, however, it is not clear from the record whether the prohibition on circumvention is causing any adverse effect on consumers’ ability to

¹³¹⁰ Tr. at 30:05–31:01 (Apr. 25, 2018) (Wiens, iFixit).

¹³¹¹ Software Study at 36 & n.191 (citing *Krause*, 402 F.3d at 125); *see also* Tr. at 92:21–93:20 (Apr. 25, 2018) (Walsh, EFF).

¹³¹² EFF, ORI & ASCDI Class 7 Initial at 3–5.

¹³¹³ Section 1201 Report at 90; Software Study at 33, 36 (noting it would be difficult for Congress to “identify the precise situations where ‘tinkering’ and ‘repair’ should be permitted”).

¹³¹⁴ *See* 2015 Recommendation at 15; 2012 Recommendation at 7.

engage in the proposed activity. Similarly, in the case of computing peripheral devices, the record does not establish that TPMs are consistently controlling access to a copyrighted work within the meaning of the statute. The evidentiary deficiencies regarding these categories of devices are discussed below.

e. Asserted Adverse Effects

i. Vehicle Telematics and Entertainment Systems

Turning to the analysis of adverse effects and consideration of the statutory factors under 1201(a)(1)(C), the first and fourth factors—the availability for use of copyrighted works and the effect of circumvention of TPMs on the market for copyrighted works—are the most germane to the proposed uses of vehicle telematics and entertainment systems. The second and third factors—the availability for use of works for nonprofit archival, preservation, and educational purposes; and the impact on criticism, comment, news reporting, teaching, scholarship, or research—are not especially relevant.

With respect to the first factor, proponents argue that absent an exemption, access to the works will be unavailable due to TPMs. Regarding telematics systems, proponents contend that these systems are becoming the nexus for diagnostic information necessary to evaluate and repair vehicles.¹³¹⁵ In some cases, they note, manufacturers have migrated some or all data relating to vehicle function from physical OBD ports to telematics systems.¹³¹⁶ Furthermore, proponents indicate that some manufacturers—including BMW and Tesla—are considering removing or have already removed the OBD port entirely.¹³¹⁷ There is also some indication that entertainment systems may be integrated with systems controlling vehicle functions, though it is unclear whether this is a common design.¹³¹⁸ Consequently, proponents argue, vehicle owners in these situations are unable to diagnose or repair their vehicles without accessing these systems.¹³¹⁹ In addition, they note that where owners are unable to repair their vehicles due to the additional cost or time, the software is no longer available for use, as the

¹³¹⁵ See Auto Care & CTA Class 7 Pet. at 3; Auto Care Class 7 Initial at 5; CTA Class 7 Initial at 3; Farmers Class 7 Initial at 9 n.48; iFixit Class 7 Pet. at 2.

¹³¹⁶ See Tr. at 59:22–60:09, 65:07–66:17 (Apr. 25, 2018) (Wiens, iFixit) (referencing John Deere and Tesla); Tr. at 46:16–47:03; 48:05–14 (Apr. 10, 2018) (Lowe, Auto Care).

¹³¹⁷ See Tr. at 46:14–48:14 (Apr. 10, 2018) (Lowe, Auto Care); Tr. at 59:22–60:09 (Apr. 25, 2018) (Wiens, iFixit).

¹³¹⁸ See EFF, Auto Care, Dorman, iFixit SmarTeks & Repair.org Class 7 Post-Hearing Resp. at 5–10 (June 11, 2018); Tr. at 56:04–57:17 (Apr. 25, 2018) (Wiens, iFixit); Tr. at 50:23–51:09 (Apr. 10, 2018) (Lowe, Auto Care); Tr. at 69:17–70:22 (Apr. 10, 2018) (Lowe, Auto Care).

¹³¹⁹ See Tr. at 70:22–71:18 (Apr. 25, 2018) (Wiens, iFixit).

vehicles sit idle or are disposed of, sometimes in favor of older machines without embedded software.¹³²⁰

Opponents counter that use of telematics for diagnosis, repair, and modification is not necessary because diagnostic data is still available through the onboard diagnostics port.¹³²¹ Alternatively, opponents say that circumvention is not needed because in 2014, organizations representing automobile OEMs and independent repair services entered into a nationwide memorandum of understanding (“MOU”) and Right to Repair (“R2R”) Agreement that obligate manufacturers to make available diagnostic and repair information to vehicle owners and independent repair services.¹³²² On this issue, proponents counter that the MOU is inadequate because it leaves out many vehicles, requires vehicle owners to pay to reinstall vehicle software on replacement parts, and excludes telematics systems.¹³²³ Finally, opponents contend that proponents have not met their burden of demonstrating the adverse effects of TPMs on noninfringing uses.¹³²⁴

The Acting Register concludes that this factor favors an exemption. The record demonstrates that the OBD-II port may provide only limited information, and there can be a need to access the telematics ECU, and incidentally an infotainment or entertainment system,¹³²⁵ to engage in activities otherwise permitted under the current exemption. And although some repair and diagnostic activities can be conducted

¹³²⁰ Farmers Class 7 Initial at 2, 6 (commenting that farmers experience significant downtime waiting for repair of equipment, and that some farmers are opting to purchase older equipment at increased prices because it does not contain software).

¹³²¹ See Tr. at 60:19–61:23 (Apr. 25, 2018) (Mooney, Harman).

¹³²² See Auto Alliance Class 7 Opp’n at 7, 15 (Ex. A, MOU and R2R Agreement); see also 2015 Recommendation at 225–26.

¹³²³ See Auto Care Class 7 Reply at 3–6; CTA Class 7 Reply at 4; see also 2015 Recommendation at 225–26 (noting that MOU did not cover all models of vehicles).

¹³²⁴ See Auto Alliance Class 7 Post-Hearing Resp. at 1 (June 6, 2018); Joint Creators II Class 7 Post-Hearing Resp. at 1 (June 11, 2018); Tr. at 57:12–24 (Apr. 10, 2018) (Williams, Joint Creators II).

¹³²⁵ Dorman also suggested that it has a need to repair or replace infotainment/entertainment modules, and has turned down requests to supply refurbished modules because there is no way for the end-user to complete the installation by syncing its controls with the vehicles, which requires circumvention. See Tr. at 44:18–45:02 (Apr. 10, 2018) (Kealey, Dorman). In a subsequent *ex parte* meeting with the Office, Dorman indicated that repairs to functional vehicle systems, such as the air conditioning, may be implicated where controls are integrated into the infotainment system. See Auto Care & Dorman Class 7 *Ex Parte* Meeting Summary at 2–3 (Sept. 6, 2018). But opponents suggest that both the infringement and 1201 statutory factor analyses differ significantly with respect to repair or modification of these systems. On the whole, without a more fully developed record on the need to circumvent for purposes unrelated to vehicle functions, the Acting Register does not recommend further adjustments to the existing exemption.

through the use of manufacturer-licensed services, proponents provide evidence demonstrating that those alternatives may be less accessible (including for time-sensitive agricultural activities) and/or substantially more costly.¹³²⁶

Regarding the fourth statutory factor, the record is mixed. Proponents state that because telematics and entertainment software serves no purpose outside of vehicles, there is no independent market for the software separate from vehicle sales.¹³²⁷ Opponents warn that “permitting an exemption for telematics or entertainment systems would enable rampant piracy of copyrighted works like music and films,” as well as “broad theft of valuable intellectual property, including valuable source code.”¹³²⁸ And, as noted above, opponents contend that access to the telematics system implicates other expressive works such as maps, databases of geographic data, and data compilations.¹³²⁹ Further, they argue, circumvention of the entertainment system could provide “access to *everything* in the system, including audiovisual works and sound recordings that reside in streaming services that the user has not paid for.”¹³³⁰ Consequently, the market for in-vehicle licensed content, which is predicated on adequate protections, could be significantly diminished.¹³³¹ Opponents further contend that to the extent proponents focus on the use of entertainment systems for “storage capacity,” allowing users to upload their own content also has the potential to impact the licensing market for in-vehicle entertainment software and content.¹³³²

¹³²⁶ See Adams Class 7 Reply at 2; Auto Care Class 7 Initial at 5; CTA Class 7 Reply at 3; DeVolve Class 7 Reply at 2; Farmers Class 7 Initial at 2–6; MEMA Class 7 Reply at 5; White Class 7 Reply at 2; Zuckerman Class 7 Reply at 2; Tr. at 29:19-30:05 (Apr. 10, 2018) (Band, ORI).

¹³²⁷ See Tr. at 25:11–22 (Apr. 10, 2018) (Kealey, Dorman).

¹³²⁸ Harman Class 7 Opp’n at 3, 6, 8–9; see also Tr. at 59:05–14 (Apr. 10, 2018) (Williams, Joint Creators II) (commenting that once a vehicle entertainment system is accessed via circumvention, it facilitates unauthorized access to subscription streaming services and copies of copyrighted content can be downloaded).

¹³²⁹ Auto Alliance Class 7 Opp’n at 10.

¹³³⁰ Harman Class 7 Post-Hearing Resp. at 2–3; see also Joint Creators II Class 7 Opp’n at 8, 11, Ex. 1 (Bell Statement at 2–3) (describing how root access could lead to unauthorized copying and access).

¹³³¹ See, e.g., Auto Alliance Class 7 Opp’n at 11 (“[T]he circumvention of access controls could severely diminish the value of this copyrighted content by enabling vehicle owners to cancel their subscriptions altogether and rely upon unauthorized access facilitated by circumvention.”); Tr. at 61:03–62:11 (Apr. 10, 2018) (Williams, Joint Creators II) (commenting that content providers that license to vehicle manufacturers seek certain protections that, if absent or inadequate, would affect licensors’ decisions to enter the market).

¹³³² See Auto Alliance Class 7 Opp’n at 11; Tr. at 57:25–58:17 (Apr. 10, 2018) (Williams, Joint Creators II).

Opponents raise legitimate concerns about the impact of the proposed uses on the market for expressive works. In 2015, the Office distinguished telematics and entertainment systems on the ground that there was “evidence to suggest that circumvention of access controls on entertainment and telematics ECUs could result in a diminution in the value of copyrighted works if those systems could no longer reliably protect the content made available through them.”¹³³³ But it is also true that there is little to suggest that there is a market for most vehicle firmware apart from the market for the vehicles themselves.¹³³⁴ Most of opponents’ concerns, while significant, primarily relate to accessing entertainment works through vehicle entertainment systems and related subscription services, not to repairing more functional software installed to facilitate vehicle operation, which may require bypassing TPMs that incidentally protect entertainment systems.¹³³⁵ Further, the existing exemption is limited to diagnosis, repair, and lawful modification of a vehicle function. In light of these concerns, the Acting Register concludes that this factor favors removing the limitation to telematics and entertainment ECUs, but only as needed to repair or lawfully modify a vehicle function.

Finally, the statute also allows consideration of “such other factors as the Librarian considers appropriate.”¹³³⁶ Opponents raise concerns regarding vehicle safety, environmental impact, unauthorized access to private data, and compliance with regulations promulgated by other federal agencies.¹³³⁷ Proponents respond that these considerations do not relate to the copyright concerns that are the primary focus of this rulemaking.¹³³⁸ Moreover, proponents suggest that the exemption will promote competition in the aftermarket and facilitate environmental responsibility.¹³³⁹ Overall, this factor does not significantly affect the Acting Register’s calculus.

Reviewing the totality of the evidence, the Acting Register concludes that proponents have established that the current prohibition against accessing telematics and entertainment ECUs is or is likely to adversely impact noninfringing repair,

¹³³³ 2015 Recommendation at 241.

¹³³⁴ *See id.* at 236.

¹³³⁵ *Cf.* EFF, Auto Care, Dorman, iFixit, SmarTeks & Repair.org Class 7 Post-Hearing Resp. at 5–10 (June 11, 2018) (comparing examples of schematics for older vehicles where telematics and infotainment systems were physically separate to modern, integrated systems).

¹³³⁶ 17 U.S.C. § 1201(a)(1)(C)(v).

¹³³⁷ *See* Auto Alliance Class 7 Opp’n at 13–14; Harman Class 7 Opp’n at 3–4 (citing incident where Jeep was hacked to remotely control vehicle functions); Tr. at 74:20–75:23 (Apr. 25, 2018) (Mooney, Harman).

¹³³⁸ *See* Auto Care Class 7 Reply at 6; Consumers Union Class 7 Initial at 3 (acknowledging importance of product safety, data privacy and security); CTA Class 7 Reply at 4.

¹³³⁹ *See, e.g.,* eBay Class 7 Reply at 2.

maintenance, and lawful modification of vehicle functions. But this conclusion does not extend to circumvention undertaken to access works provided via a separate subscription service, such as SiriusXM, or via a drive directed at entertainment consumption, such as a DVD or Blu-ray player.¹³⁴⁰

ii. Other Devices

While the rulemaking generally considers whether adverse effects have been demonstrated in reference to the statutory factors, as with the rest of this class, the spotty record and sprawling nature poses a challenge. The Acting Register first analyzes whether, for each category of devices, the record reflects that the prohibition on circumvention is inhibiting the identified likely noninfringing uses. Next, if there does seem to be an adverse effect, she considers those categories specifically in connection to the statutory factors.

1) Device Categories

Smartphones. There was considerable testimony from repair services and concerned individuals suggesting that TPMs inhibit the restoration of smartphones to full functionality.¹³⁴¹ For example, when services repaired the iPhone home button on a device with touch ID, the phone would often receive an error message and become disabled.¹³⁴² Further, existing manufacturer repair channels may be inadequate.¹³⁴³ Opponents did not contest the specifics with respect to smartphones. Further, as past rulemakings have recognized a need to engage in circumvention for purposes of unlocking and jailbreaking smartphones, and the testimony is that the circumstances that gave rise to those records have not materially changed, the Acting Register can look to those records regarding the applicability of TPMs. The Acting Register will consider whether the prohibition is adversely affecting the repair of smartphones with reference to the statutory factors.

¹³⁴⁰ Further, the record also suggests such services or devices are typically protected by separate TPMs, such as passwords or the AACCS or CSS access controls. *See* DVD CCA & AACCS LA Class 7 Opp'n at 4; Joint Creators Class 7 Opp'n at Ex. 1 (Bell Statement at 2).

¹³⁴¹ *See* EFF, Auto Care, Dorman, iFixit, SmarTeks & Repair.org Class 7 Post-Hearing Resp. at 2 (June 11, 2018); iFixit Class 7 Pet. at 2; Tr. at 13:19–14:24 (Apr. 25, 2018) (Zieminski, Puls); Tr. at 32:12–35:12 (Apr. 25, 2018) (Wiens, iFixit; Zieminski, Puls).

¹³⁴² *See* Tr. at 34:09–19 (Apr. 25, 2018) (Zieminski, Puls).

¹³⁴³ *See* Tr. at 98:07–21 (Apr. 25, 2018) (Zieminski, Puls) (commenting that “it would effectively take Apple 2.7 years just to catch up with the backlog in the United States to be able to [make all necessary repairs] if you relied strictly on Apple Geniuses”); Tr. at 33:19–35:12 (Apr. 25, 2018) (Zieminski, Puls) (stating that issue with iPhone home button took 2–3 years of complaints, blog posts, and class action).

Home appliances and home systems. Proponents also testified that it is becoming difficult to repair many home appliances and systems, such as refrigerators or environmental controls systems, due to the prohibition on circumvention, and they anticipate that consumer requests to repair these appliances will increase as warranties on devices expire.¹³⁴⁴ For example, proponents note that where a software-enabled appliance is synced to a Wi-Fi network, TPMs on security software may impede the owner’s ability to make repairs without circumvention.¹³⁴⁵ In other cases, consumers may seek to circumvent TPMs on home appliances to turn off Wi-Fi functionality for security purposes.¹³⁴⁶ Moreover, the Office has recognized that the increased integration of TPM-protected software into “everyday products,” and home appliances in particular, could undermine traditional expectations of ownership unless owners can freely repair those products.¹³⁴⁷ The Acting Register will consider whether the prohibition is adversely affecting the repair of home appliances and home systems with reference to the statutory factors.

Computers and computing peripherals. In contrast, while it is self-evident that computing equipment can break and need to be repaired, it was not clear from the record that section 1201 is inhibiting such repairs. Much of the record consisted only of equipment lists without explanation of whether TPMs are typically applied and, if so, how they might inhibit repair activities. Without more information, it would not seem reasonable to infer that section 1201 is actually inhibiting the repair of everyday devices such as display monitors, faxes, keyboards, handsets, or other office equipment that have long been repaired without needing an exemption under copyright law.¹³⁴⁸ Other examples related more to modification, a broad concept that, as noted, the Acting Register is not

¹³⁴⁴ See EFF Class 7 Pet at 2; iFixit Class 7 Pet. at 2 (suggesting everyday products “from lightbulbs to toothbrushes” and “smart refrigerators” contain software, and an exemption is necessary to preserve ownership rights); Tr. at 31:07–13 (Apr. 25, 2018) (Wiens, iFixit) (noting that the “typical warranty is 12 months” whereas “[t]he anticipated life span of an appliance would be in the ten-year range”); Tr. at 13:21–22 (Apr. 25, 2018) (Zieminski, Puls) (commenting that Puls is beginning to expand its repair services to include smart home appliances).

¹³⁴⁵ See Tr. at 30:15–31:01 (Apr. 25, 2018) (Wiens, iFixit).

¹³⁴⁶ See Tr. at 73:21–74:01 (Apr. 25, 2018) (Wiens, iFixit); Tr. at 30:05–14 (Apr. 25, 2018) (Wiens, iFixit).

¹³⁴⁷ See Software Study at i–ii, 2, 8 (offering examples of software embedded in home appliances including microwaves, toasters, thermostats, and refrigerators and noting “the marketplace is changing; some would say radically”); see also Section 1201 Report at 88–90.

¹³⁴⁸ At the hearing, ORI and ASCDI testified that some repair servicers may be inhibited from identifying themselves. Tr. at 85:23–86:05 (Apr. 10, 2018) (Band, ORI); Tr. at 96:07–97:16 (Apr. 10, 2018) (Shore, ASCDI). So long as the testimony is otherwise credible, the rulemaking has long considered anonymous statements. See, e.g., Farmers Class 7 Initial at 21 (decl. of John Doe, Large-Scale Farmer).

able to conclude is likely to be noninfringing.¹³⁴⁹ Finally, proponents raise an example of the WD Passport external hard drive series, asserting that “encryption . . . interferes with the owner’s ability to repair the hard drive if the controller malfunctions.”¹³⁵⁰ But in the explanation, they also allege that there is “a TPM that fails to protect access to the firmware on the hard drive or the user’s files.”¹³⁵¹ It is thus unclear that the TPM is effectively controlling access to a work within the meaning of section 1201(a)(1).¹³⁵² Further, in none of these examples do proponents address whether the asserted adverse effects are common to the broader category of devices or instead represent “individual cases” outside the scope of the rulemaking.¹³⁵³ The Acting Register accordingly finds that the evidence relating to computers and ancillary devices is insufficient at this time to conclude that there are demonstrable adverse effects on noninfringing uses.

Consumables. In two brief sentences in EFF/ORI/ASCDI’s initial comments, with a smattering of follow-up, they also mention a handful of devices that use “consumable cartridges.”¹³⁵⁴ These examples generally consist of a reference to the relevant product category, together with a single news article for each category suggesting a possible manufacturer “lock-in” effect.¹³⁵⁵ This information is insufficient for a determination of whether TPMs are effectively controlling access to copyrighted software in those products. In a case involving similar interoperability uses, the Sixth Circuit held that an authentication sequence preventing the use of third-party printer toner cartridges did not effectively control access to the printer software where the code could be read directly from the printer memory.¹³⁵⁶ Moreover, for most of the examples briefly raised, including printer ink,¹³⁵⁷ coffee¹³⁵⁸, and juice,¹³⁵⁹ it appears that the manufacturers have

¹³⁴⁹ See EFF, ORI & ASCDI Class 7 Initial at 6 (Lenovo laptops and ST-Link debugger/programmer).

¹³⁵⁰ *Id.*

¹³⁵¹ *Id.*

¹³⁵² See 17 U.S.C. § 1201; *Lexmark Int’l v. Static Control Components, Inc.*, 387 F.3d 522, 547 (6th Cir. 2004) (“[J]ust as one would not say that a lock on any door of a house ‘controls access’ to the house after its purchaser receives the key to the lock, it does not make sense to say that this provision of the DMCA applies to otherwise-readily-accessible copyrighted works.”).

¹³⁵³ House Manager’s Report at 6.

¹³⁵⁴ EFF, ORI & ASCDI Class 7 Initial at 5–6.

¹³⁵⁵ *Id.* While light bulb interoperability is addressed separately in the submission, it may implicate similar issues. See *id.* at 3.

¹³⁵⁶ *Lexmark*, 387 F.3d at 546–47; see also Tr. at 44:23–45:02 (Apr. 25, 2018) (Wiens, iFixit) (discussing example of cat litter cleaning fluid cartridge and stating that the device “was very similar to what you see on the ink cartridge”); Tr. at 45:17–46:04 (Apr. 25, 2018) (Walsh, EFF).

¹³⁵⁷ See EFF, ORI & ASCDI Class 7 Initial at 6 & n.24 (referencing HP printer ink policies); Karl Bode, *HP Issues Flimsy Mea Culpa For Recent Printer Cartridge DRM Idiocy, But It’s Not Enough*,

removed or discontinued the use of TPMs or offered alternatives for consumers seeking to use interoperable components. Meanwhile, section 1201(f) may cover many of these uses to the extent they seek to facilitate interoperability with a computer program.¹³⁶⁰ While the Copyright Office stands by its statement that “section 1201 was not intended to facilitate manufacturers’ use of TPMs to facilitate product tying,” to recommend an exemption, there must be a record that shows distinct, verifiable, and measureable adverse effects, or that such effects are likely to occur.¹³⁶¹ Accordingly, on the current record, the Acting Register does not recommend expanding the exemption to specifically include consumables.

Video game consoles. Proponents suggest there is a need to circumvent access controls to engage in console repair and “not to expand the functionality of the device.”¹³⁶² Specifically, they suggest that there is a need to repair the optical drive for the Xbox 360 and PlayStation 4, which implicates section 1201 because “the drive is cryptographically paired to the main board.”¹³⁶³ But the 2015 rulemaking considered this exact issue, concluding that “there are other methods of replacing a malfunctioning optical drive that do not require circumvention.”¹³⁶⁴ Opponents suggest that “[t]he current record

TECHDIRT (Oct. 4, 2016), <https://www.techdirt.com/articles/20161003/11423135692/hp-issues-flimsy-mea-culpa-recent-printer-cartridge-drm-idiocy-not-enough.shtml>; Karl Bode, *HP Brings Back Obnoxious DRM That Cripples Competing Printer Cartridges*, TECHDIRT (Sept. 19, 2017) (<https://www.techdirt.com/articles/20170914/11491238210/hp-brings-back-obnoxious-drm-that-cripples-competing-printer-cartridges.shtml>) (HP offering alternate firmware without TPMs).

¹³⁵⁸ EFF, ORI & ASCDI Class 7 Initial at 6 & n.25 (citing Julia Bluff, *Repairman Takes Keurig to Task over Unfixable Machines*, iFIXIT BLOG (Dec. 21, 2015) <https://ifixit.org/blog/7668/unfixable-keurig/> (stating that Keurig is developing a recyclable pod)); Brian Barrett, *Keurig’s My K-Cup Retreat Shows We Can Beat DRM*, WIRED (May 8, 2015) <https://www.wired.com/2015/05/keurig-k-cup-drm/> (Keurig reinstated re-usable coffee pod that accepts alternate inputs following customer complaints).

¹³⁵⁹ See EFF, ORI & ASCDI Class 7 Initial at 6 & n.26 (referencing Juicero product); Ashley Carman, *Juicero, Maker of the Doomed \$400 Internet-Connected Juicer, Is Shutting Down*, THE VERGE (Sept. 1, 2017) <https://www.theverge.com/2017/9/1/16243356/juicero-shut-down-lay-off-refund>.

¹³⁶⁰ For a discussion of the scope of section 1201(f), see Section 1201 Report at 15–16, 63–71.

¹³⁶¹ Section 1201 Report at 92, 120.

¹³⁶² Tr. at 17:02–16 (Apr. 25, 2018) (Wiens, iFixit).

¹³⁶³ EFF, Auto Care, Dorman, iFixit, SmarTeks & Repair.org Class 7 Post-Hearing Resp. at 4 (June 11, 2018).

¹³⁶⁴ 2015 Recommendation at 196–97; 200–01.

included even less evidence and fewer arguments attempting to support the inclusion of consoles in any repair exemption.”¹³⁶⁵

Indeed, the record again suggests that in many cases, manufacturer repair services will be widely available and adequate.¹³⁶⁶ Proponents suggest that manufacturer warranties and repair services are inadequate because of high costs, repair wait times, and the possibility of losing user-saved game data when a manufacturer replaces, rather than repairs, a console.¹³⁶⁷ Opponents, on the other hand, state that the major manufacturers continue to offer warranties and low-cost options for out-of-warranty repairs, which they characterize as fast, reliable, and well-rated by customers.¹³⁶⁸ Opponents also caution that once TPMs are circumvented by an independent service, it is questionable whether they could be restored.¹³⁶⁹ Because of this, opponents argue that it would be difficult for a user to “repair” or perform “maintenance” on a console in a manner consistent with how those terms are defined in section 117(d).¹³⁷⁰

At bottom, the record reflects similar facts to the 2015 rulemaking, which concluded that proponents had failed to demonstrate a showing of adverse effects, and so the Acting Register reaches the same conclusion here.

Other devices. Proponents offer specific examples of modification of a few other devices, including a robotic dog, a camera gimbal, and handheld two-way radios.¹³⁷¹ But as discussed above, as an overall matter, the Acting Register cannot conclude that “modification” is likely to be noninfringing. Moreover, proponents fail to address whether the asserted adverse effects concerning these devices apply to the broader category of devices of which they are a part, or instead represent “individual cases,” in which case they are outside the scope of the rulemaking.¹³⁷² Thus, the Acting Register finds that the evidence relating to these devices is insufficient at this time to adequately identify and evaluate any asserted adverse effects on noninfringing uses.

¹³⁶⁵ Joint Creators II Class 7 Post-Hearing Resp. at 2 n.3 (June 11, 2018).

¹³⁶⁶ Cf. 2015 Recommendation at 200–01.

¹³⁶⁷ See EFF Class 7 Reply at 4–5; Tr. at 10:01–11:08 (Apr. 25, 2018) (Miranda, SmarTeks); Tr. at 19:02–20:13 (Apr. 25, 2018) (Wiens, iFixit).

¹³⁶⁸ Joint Creators II Post-Hearing Resp. at 2 n.3.

¹³⁶⁹ See ESA Class 7 Opp’n at 5 (circumvention could result in a console being “unable to run properly licensed content.”); Tr. at 20:16–23:10 (Apr. 25, 2018) (Williams, Joint Creators II).

¹³⁷⁰ Tr. at 21:26–23:10 (Apr. 25, 2018) (Williams, Joint Creators II).

¹³⁷¹ See EFF, ORI & ASCDI Class 7 Initial at 3–5; EFF Class 7 Reply at 5.

¹³⁷² House Manager’s Report at 6.

2) *Statutory Factors*

Having isolated potential adverse effects to the categories of repair of home appliances and smartphones, the following analysis considers these categories in reference to the statutory factors. The first statutory factor favors an exemption, as the proposed uses extend the useful life of the devices by facilitating repair and restoration of device functionality. The record demonstrates there are times where manufacturer-authorized repair channels are insufficient to address widespread consumer problems in a timely manner or to address the issue at all, and also suggests that circumvention is necessary to engage in activities of self-repair.¹³⁷³

Regarding the second and third factors, proponents suggest that the exemption would allow for some of the additional uses outlined in the statute, such as enabling “hands-on learning.”¹³⁷⁴ Opponents respond that the proposed uses are unrelated to archival, preservation, or educational purposes, or to criticism and commentary.¹³⁷⁵ To some extent, the record shows that consumers and independent repair services rely on shared observations about device malfunctions.¹³⁷⁶ The Acting Register finds these factors weigh slightly in favor of a determination that TPMs have an adverse effect on the proposed uses.

For the fourth factor, the effect on the value for copyrighted works, proponents reiterate their position that because device firmware does not have value independent from a device, there is no cognizable impact on the market.¹³⁷⁷ Opponents largely do not object to expanding the exemption to allow circumvention to repair home appliances, though they do express concern about modification of any devices where expressive works are implicated.¹³⁷⁸ Opponents also stress the potential harm from “depriving copyright owners of the exclusive right to modify their software.”¹³⁷⁹ But as noted above when discussing infringement, the purpose of diagnosis and repair is to restore the intended functionality of the device, and not to modify expressive works. There is little in the record to suggest that engaging in these activities will negatively affect the value of

¹³⁷³ See Tr. at 73:21–74:01 (Apr. 25, 2018) (Wiens, iFixit); Tr. at 98:07–21 (Apr. 25, 2018) (Zieminski, Puls).

¹³⁷⁴ EFF, ORI & ASCDI Class 7 Initial at 12.

¹³⁷⁵ See Joint Creators II Class 7 Opp’n at 11.

¹³⁷⁶ See Tr. at 97:23–98:21 (Apr. 25, 2018) (Zieminski, Puls) (noting the need to widely disseminate repair information to effectuate timely repairs by independent servicers).

¹³⁷⁷ See EFF, ORI & ASCDI Class 7 Initial at 10, 13.

¹³⁷⁸ See Tr. at 90:06–18 (Apr. 10, 2018) (Williams, Joint Creators II).

¹³⁷⁹ Joint Creators II Class 7 Initial at 10.

copyrighted works. For these reasons, the fourth factor favors exemption with regard to diagnosis and repair of home appliances and smartphones.

The Acting Register does not find any additional factors material to the determination of adverse effects.

After weighing the statutory factors, the Acting Register concludes that the prohibition on circumvention of TPMs is causing, or is likely to cause, an adverse impact on the noninfringing diagnosis, maintenance, and repair of home appliances and smartphones. The Acting Register cannot conclude that, based on the record, proponents have demonstrated an actual or likely adverse effect on any other activities with respect to expansion to other devices. Simply put, the available record is too thin.

f. Third-Party Assistance

As noted, several proponents requested that the exemption specifically permit third parties, such as repair services, to assist owners in carrying out the authorized activities. The anti-trafficking provisions in sections 1201(a)(2) and (b) make it unlawful to “offer to the public, provide, or otherwise traffic in any . . . service . . . or part thereof” that is primarily designed for the purpose of circumvention, has only limited commercially significant purpose other than circumvention, or is marketed for use in circumvention.¹³⁸⁰ As the Office has previously noted, these provisions provide important benefits to the copyright system, including “prevent[ing] the development of mainstream business models based around the production and sale of circumvention tools.”¹³⁸¹ The Librarian is not authorized to adopt exemptions to the anti-trafficking provisions. In the 2015 rulemaking, the Office declined to recommend an exemption expressly permitting vehicle repair or modification “on behalf of” the vehicle owner, concluding that such a provision could implicate the prohibition on circumvention “service[s].”¹³⁸²

In the Section 1201 Report, the Office considered the issue of third-party assistance in light of persisting concerns that “ordinary consumers often lack the skills or technical knowledge to circumvent independently.”¹³⁸³ The Office concluded that there is “substantial uncertainty as to whether there are types of third-party assistance that would fall outside the reach of the ‘service’ bar.”¹³⁸⁴ To address the frustration of users who are eligible to benefit from an exemption, but who may not have the tools or skills

¹³⁸⁰ 17 U.S.C. § 1201(a)(2), (b)(1).

¹³⁸¹ Section 1201 Report at 56.

¹³⁸² 2015 Recommendation at 246–47.

¹³⁸³ Section 1201 Report at 56.

¹³⁸⁴ *Id.* at 59.

to circumvent TPMs, the Office said that in future rulemakings it would “seek to avoid recommending unduly narrow definitions of exemption beneficiaries.”¹³⁸⁵ The Office observed that this approach would appear to be consistent with section 1201(a)(1)(C)’s reference to permitting “users of a copyrighted work” to engage in circumvention, as opposed to “owners” of a work.¹³⁸⁶ The Office cautioned, however, that it “cannot affirmatively recommend exemption language that is likely to be read to authorize unlawful trafficking activity.”¹³⁸⁷ In addition, the Office noted that the question of whether certain forms of third-party assistance may fall outside the trafficking prohibition was both “untested [in the courts] and outside the scope of the rulemaking.”¹³⁸⁸

In this context, proponents urge the Office to refine the language of the exemption to permit third-party assistance. Farmers petition the Office to expressly include language permitting third-party assistance for agricultural equipment.¹³⁸⁹ Others argue that the reference to “users” in section 1201(a)(1) already contemplates third-party assistance and should be interpreted broadly.¹³⁹⁰ In proponents’ view, the increased integration of software has added a layer of complexity to functional repairs such that many vehicle and device owners would not be able to take advantage of the exemption without third-party assistance.¹³⁹¹

In its opposition to exempting third-party assistance for vehicle repair, the Auto Alliance states that the Office is not authorized by statute to enable “services” because it would impermissibly expand the exemption to activity that would constitute unlawful trafficking.¹³⁹² Others offer similar objections.¹³⁹³ Specifically, Joint Creators II argue that to the extent the services provided by a repair business always require circumvention, its activities are likely to constitute unlawful trafficking.¹³⁹⁴

¹³⁸⁵ *Id.* at 62.

¹³⁸⁶ *Id.* at 61 n.335.

¹³⁸⁷ *Id.* at 61–62.

¹³⁸⁸ *Id.* at 62.

¹³⁸⁹ Farmers Class 7 Initial at 6.

¹³⁹⁰ *See, e.g.*, Auto Care Class 7 Initial at 2–3; Consumers Union Class 7 Initial at 3; CTA Class 7 Initial at 2; EFF Class 7 Pet. at 3; iFixit Class 7 Pet. at 2; MEMA Class 7 Initial at 6.

¹³⁹¹ *See, e.g.*, eBay Class 7 Reply at 2, 4; Farmers Class 7 Initial at 7–8; MEMA Class 7 Reply at 4.

¹³⁹² Auto Alliance Class 7 Opp’n at 7–9.

¹³⁹³ *See, e.g.*, Harman Class 7 Opp’n at 4; Joint Creators II Class 7 Opp’n at 12; Tr. at 19:02–07 (Apr. 10, 2018) (Williams, Joint Creators II).

¹³⁹⁴ Tr. at 100:05–103:01 (Apr. 25, 2018) (Williams, Joint Creators II).

Proponents respond that third-party repair services are not primarily designed or marketed for the purpose of circumvention; rather circumvention of TPMs is merely ancillary to those services.¹³⁹⁵ Proponents distinguish third-party assistance specifically in service of *noninfringing* activity from trafficking, which facilitates infringement.¹³⁹⁶ They further argue that third-party assistance is implicit in the statute, and that no negative inference should be taken from Congress’s adoption of the Unlocking Act, which expressly authorizes circumvention at the direction of the device owner in the context of cellphones.¹³⁹⁷

The parties also disagree as to whether section 117 provides a basis for allowing third-party assistance. Proponents point out that section 117 allows the owner of a copy of a program to “authorize” the making of a copy or adaption of the program for purposes of maintenance or repair.¹³⁹⁸ Opponents, however, respond that “a defense to copyright infringement is not a defense to a section 1201 violation,” and thus section 117 cannot justify an exemption “likely to encourage trafficking under [section] 1201(a)(2).”¹³⁹⁹

In light of these competing statutory interpretations, and for the reasons discussed in the Section 1201 Report, the Acting Register recommends removing the current exemption language requiring that circumvention be “undertaken by the authorized owner.” While the statutory language is far from clear, and the courts have yet to address this issue, there is at least a plausible argument that some forms of third-party assistance involving circumvention will not rise to the level of a prohibited “service” in all instances.¹⁴⁰⁰ Indeed, as Joint Creators II appear to acknowledge,¹⁴⁰¹ a contrary reading would seem to render superfluous the criteria in section 1201(a)(2)(A) through (C), which bar only those services that are “primarily designed” for the purpose of circumventing, that have “only a limited commercially significant purpose or use” beyond circumvention, or that are marketed for use in circumventing.¹⁴⁰² Moreover, as noted in the Section 1201 Report, the statutory directive to consider possible adverse effects on “users of a copyrighted work” arguably suggests that, in at least some cases, a

¹³⁹⁵ See Tr. at 91:23–92:04 (Apr. 25, 2018) (Walsh, EFF); Tr. at 13:17–18 (Apr. 10, 2018) (Band, ORI).

¹³⁹⁶ See Tr. at 90:20–25 (Apr. 25, 2018) (Walsh, EFF); Tr. at 26:24–29:01 (Apr. 10, 2018) (Band, ORI).

¹³⁹⁷ Tr. at 106:08–20 (Apr. 25, 2018) (Walsh, EFF); see Unlocking Act § 2(c), 128 Stat. at 1751–52; see also 2015 Recommendation at 247; Section 1201 Report at 59–62 (both discussing provision).

¹³⁹⁸ 17 U.S.C. § 117(c); see MEMA Class 7 Reply at 2–3; Tr. at 39:11–24 (Apr. 10, 2018) (Band, ORI).

¹³⁹⁹ Tr. at 40:06–14 (Apr. 10, 2018) (Williams, Joint Creators II).

¹⁴⁰⁰ See 1201 Report at 59 (concluding that there is “substantial uncertainty” on this issue).

¹⁴⁰¹ Tr. at 19:15–20:12 (Apr. 10, 2018) (Williams, Joint Creators II).

¹⁴⁰² 17 U.S.C. § 1201(a)(2)(A)–(C).

party other than the owner of a copy of a work may be within the class of persons covered by an exemption.¹⁴⁰³

To be clear, removal of the “authorized owner” language should in no way be understood to suggest that the exemption extends to conduct prohibited by the anti-trafficking provisions; such an exemption is beyond the Librarian’s authority to adopt. Nor is the Acting Register expressing a view as to whether particular examples of assistance do or do not constitute unlawful circumvention services. Specifically, the Acting Register expresses no opinion on whether vehicle or other repair services may run afoul of the anti-trafficking provisions when engaging in circumvention on behalf of customers. The recommended revision simply accounts for the possibility that certain third parties may qualify as “user[s]” eligible for an exemption from liability under section 1201(a)(1). Such parties still will be required to consider whether their activities could separately give rise to liability under section 1201(a)(2) or (b). Given the legal uncertainty in this area, services electing to proceed with circumvention activity pursuant to the exemption do so at their peril.

g. Circumvention Tools

In the Section 1201 Report, the Office concluded that “beneficiaries should be able to make necessary tools solely for their own use in carrying out exempted circumventions,” and indeed are entitled to do so for “purposes of self-help” under the current statutory language.¹⁴⁰⁴ However, the Office noted that current law does not permit the distribution of such tools and did not recommend that Congress allow this activity because “it would be impossible to control downstream uses” for unauthorized or unlawful circumvention.¹⁴⁰⁵

A number of petitioners in this rulemaking ask the Office to adopt a more expansive view that would allow exemption beneficiaries, including third parties, to not only make tools, but also to distribute them.¹⁴⁰⁶ Other proposals focused on the acquisition and use

¹⁴⁰³ *Id.* § 1201(a)(1)(C) (emphasis added); *see* 37 C.F.R. § 201.40(b)(2) (2016).

¹⁴⁰⁴ Section 1201 Report at 53–54.

¹⁴⁰⁵ *Id.* at 56.

¹⁴⁰⁶ *See, e.g.,* Auto Care & CTA Class 7 Pet. at 3 (petitioning to allow “companies with expertise in software to develop and make circumvention and repair solutions available to servicers and consumers”); FSF Class 7 Initial at 2 (“exemption should extend . . . further to the sharing of tools that enable users to repair their devices”).

of circumvention tools.¹⁴⁰⁷ Opponents object that these proposals are unjustified by the record and would violate the anti-trafficking provisions.¹⁴⁰⁸

As discussed in the Section 1201 Report, the Acting Register recognizes that the acquisition and use of tools often is necessary for beneficiaries to circumvent TPMs, and the 2015 regulatory exemption language would seem to already encompass that activity.¹⁴⁰⁹ The distribution of such tools, however, is prohibited by the trafficking provisions, and, as noted, the Librarian is not authorized to grant exemptions to those provisions. Moreover, there are sound policy reasons why such exemptions are not permitted. In the Section 1201 Report, the Office recommended against a legislative change that would permit the distribution of such tools to exemption beneficiaries, concluding that “it would be impossible to control the downstream uses of any circumvention tools once distributed, even if they were produced with the intent that they be used only to assist authorized circumvention.”¹⁴¹⁰ Accordingly, the Acting Register does not recommend additional language exempting the dissemination or distribution of tools.

3. NTIA Comments

NTIA, like the Acting Register, grouped the various expansion proposals into four categories: software-enabled devices; telematics and entertainment systems; third parties; and distribution and sale of circumvention tools.

Software-Enabled Devices. NTIA supports expanding the exemption to a “new definable sub-class” of home appliances and mobile handsets (such as cell phones) “when circumvention is a necessary step to allow the diagnosis, repair or lawful modification of a device function.”¹⁴¹¹ NTIA concludes that these are noninfringing fair uses, in part because “diagnosis is a critical component of repairing a device” and subsequent modification of devices is transformative.¹⁴¹² In winnowing the scope of proposed devices to home appliances and handsets, NTIA relies on the “strength of the record for these devices.”¹⁴¹³ For home appliances, NTIA cites evidence that “appliance companies are installing various security measures that prevent repair” and that circumvention is

¹⁴⁰⁷ See, e.g., Farmers Class 7 Initial at 6.

¹⁴⁰⁸ See Auto Alliance Class 7 Opp’n at 4–7; Joint Creators II Class 7 Opp’n at 5, 12; Tr. at 18:16–19:07 (Apr. 10, 2018) (Williams, Joint Creators II).

¹⁴⁰⁹ See Section 1201 Report at 52–56; see also CTA Class 7 Initial at 2–3; Farmers Class 7 Initial at 10; Tr. at 32:02–15 (Apr. 10, 2018) (Lowe, Auto Care).

¹⁴¹⁰ Section 1201 Report at 56.

¹⁴¹¹ NTIA Letter at 50, 52.

¹⁴¹² *Id.* at 51.

¹⁴¹³ *Id.*

necessary to “update and secure the device” when the manufacturer has ceased providing security updates.¹⁴¹⁴ For handsets, NTIA points to record support for replacing cell phone batteries and modifying two-way radio functionality.¹⁴¹⁵ NTIA further observes that any infringement concerns are “ameliorated as [home appliances and handsets] . . . do not include media playback of copyrighted works as their primary function.”¹⁴¹⁶

The Acting Register largely concurs with NTIA’s support for expanding the exemption to allow users to diagnose and repair smartphones and home appliances. But, as noted above, the Acting Register finds that “modification” has not been defined with sufficient precision in this rulemaking to conclude as a general matter that it is likely to be noninfringing. Accordingly, the Acting Register declines to recommend an exemption that would allow modification of devices, including two-way radio functionality. Further, as noted below, the Acting Register recommends additional regulatory language defining “repair” in accordance with section 117.

Telematics and Entertainment Systems. NTIA supports expanding the existing exemption to allow “use of telematics data for diagnostic purposes.”¹⁴¹⁷ NTIA found persuasive the more developed record in this rulemaking, including testimony that “critical diagnostic information is increasingly inaccessible through the ‘on-board diagnostics’ (OBD) port” and that there is now “a trend toward diagnostic information being located in the telematics module.”¹⁴¹⁸ NTIA recommends, however, “limiting use to obtaining the *diagnostic* data from the telematics module for purposes of repair and modification of the vehicle, and not repair or modification to the module itself.”¹⁴¹⁹ As to vehicle entertainment systems, NTIA “continues to have reservations about the strength of [the] record and the potential for infringement” and does not recommend an expansion to permit access for the proposed uses, including “storage capacity.”¹⁴²⁰

Like NTIA, the Acting Register is unpersuaded by the proposed use of entertainment systems’ storage capacity for noninfringing purposes. As outlined above, however, the record demonstrates that incidental access to vehicle entertainment systems may be necessary to diagnose, repair, or lawfully modify vehicle functions. The Acting Register therefore concludes that a narrow expansion permitting such incidental access is

¹⁴¹⁴ *Id.*

¹⁴¹⁵ *Id.*

¹⁴¹⁶ *Id.* at 52.

¹⁴¹⁷ *Id.* at 53.

¹⁴¹⁸ *Id.*

¹⁴¹⁹ *Id.* at 53–54.

¹⁴²⁰ *Id.* at 54.

appropriate, provided that the exemption includes adequate safeguards—in particular, a requirement that circumvention not be accomplished for the purpose of gaining unauthorized access to other copyrighted works.

Third Parties. NTIA recommends removing the current exemption’s reference to “the authorized owner of the vehicle” — a change that it characterizes as “extending the current exemption to allow circumvention by third-party service providers to diagnose, repair and modify software-enabled vehicles on behalf of owners.”¹⁴²¹ Acknowledging the challenges posed by “increasingly complex” vehicle systems, NTIA comments that vehicle owners “risk losing the freedom to diagnos[e], repair, and modify their vehicles without this expansion.”¹⁴²² NTIA “does not believe that the proposed exemption will violate the anti-trafficking provisions [of the DMCA],” concluding instead that it “will allow vehicle owners to receive the necessary assistance to exercise ownership rights that [the] DMCA intended to leave intact.”¹⁴²³ Although the Acting Register concurs with NTIA’s recommendation to eliminate regulatory language requiring that circumvention be undertaken by the authorized owner, as noted above, she expresses no view on whether particular activities may or may not implicate the anti-trafficking provisions. To reiterate, those provisions are unaffected by the exemption.

Distribution and Sale of Circumvention Tools. NTIA agrees with the Acting Register’s recommendation to deny the proposals to “permit third-party commercialization of software repair tools for vehicles in this class,” concluding that such activity is “likely to constitute trafficking.”¹⁴²⁴ NTIA comments that although activities that constitute “personal use” of circumvention tools may be permitted, “distribution of the same tools,” including “marketing and sale of tools,” “may violate the DMCA’s anti-trafficking provisions.”¹⁴²⁵

4. Conclusion and Recommendation

After thorough consideration, the Acting Register recommends expanding the current exemption in areas where there is sufficient record support for such a change, while retaining language to ensure that both the class of works and the permitted uses are appropriately defined. As a result, the Acting Register is recommending two separate exemptions, one related to motorized land vehicles, and one related to the repair and maintenance of additional categories of devices.

¹⁴²¹ *Id.* at 60.

¹⁴²² *Id.* at 55.

¹⁴²³ *Id.* at 58 & n.298 (citing Section 1201 Study at 54).

¹⁴²⁴ *Id.* at 60–61.

¹⁴²⁵ *Id.* at 61.

Regarding motor vehicles, first, the recommended exemption removes the requirement that circumvention be “undertaken by the authorized owner” of the vehicle or device, instead recommending that it apply where such items are “lawfully acquired.” This change responds to proponents’ concerns that the language of the existing exemption improperly excludes other users with a legitimate interest in engaging in noninfringing diagnosis, repair, or modification activities. As discussed above, in recommending this change, the Acting Register expresses no view on whether particular activities might constitute prohibited “service[s]” under section 1201(a)(2) and (b).

Second, the Acting Register recommends removing the language excluding access to computer programs designed for the control of telematics or entertainment systems. The Acting Register is persuaded that, due to increasing integration of vehicle computer systems since the 2015 rulemaking, retaining this limitation may impede noninfringing uses that can only be accomplished by accessing these systems. Nonetheless, the Acting Register takes seriously opponents’ concerns about unauthorized access to expressive works through subscription services unrelated to vehicle functioning, and accordingly the recommended exemption specifically excludes access to “programs accessed through a separate subscription service.” Further, while the broadened exemption permits incidental access to a vehicle infotainment system, it provides that such access is allowed only to the extent it is “a necessary step to allow the diagnosis, repair, or lawful modification of a vehicle function.” Because the Acting Register finds that the record is insufficiently developed to support expanding the exemption to permit diagnosis, repair, or lawful modification of the telematics and infotainment systems themselves, the regulatory language does not extend to those activities. To further underscore that the exemption does not authorize circumvention for purposes going beyond those specified, it includes the additional requirement that circumvention may not be “accomplished for the purpose of gaining unauthorized access to other copyrighted works.” This language ensures that the exemption cannot be used as a shield for piracy in the guise of vehicle repair.

Next, the Acting Register recommends a new exemption allowing for the circumvention of TPMs restricting access to firmware that controls smartphones, and firmware that controls home appliances and home systems, for the purposes of diagnosis, maintenance, or repair. In doing so, the Acting Register adopts section 117’s definitions of “maintenance” and “repair.”¹⁴²⁶ Here again, the recommended text includes the condition that circumvention not be “accomplished for the purpose of gaining unauthorized access to other copyrighted works.”

¹⁴²⁶ 17 U.S.C. § 117(d); *see* Joint Creators Class 7 Opp’n at 5 (suggesting that the statutory definition of “repair” be incorporated into any exemption).

Accordingly, the Acting Register recommends that the Librarian designate the following classes:

(1) Computer programs that are contained in and control the functioning of a lawfully acquired motorized land vehicle such as a personal automobile, commercial vehicle, or mechanized agricultural vehicle, except for programs accessed through a separate subscription service, when circumvention is a necessary step to allow the diagnosis, repair, or lawful modification of a vehicle function, where such circumvention does not constitute a violation of applicable law, including without limitation regulations promulgated by the Department of Transportation or the Environmental Protection Agency, and is not accomplished for the purpose of gaining unauthorized access to other copyrighted works.

(2) Computer programs that are contained in and control the functioning of a lawfully acquired smartphone or home appliance or home system, such as a refrigerator, thermostat, HVAC, or electrical system, when circumvention is a necessary step to allow the diagnosis, maintenance, or repair of such a device or system, and is not accomplished for the purpose of gaining access to other copyrighted works. For purposes of this paragraph (b)(10):

(i) The “maintenance” of a device or system is the servicing of the device or system in order to make it work in accordance with its original specifications and any changes to those specifications authorized for that device or system; and

(ii) The “repair” of a device or system is the restoring of the device or system to the state of working in accordance with its original specifications and any changes to those specifications authorized for that device or system.

H. Proposed Class 9: Computer Programs—Software Preservation

1. Background

a. Summary of Proposed Exemption

Proposed Class 9 seeks to address concerns that TPMs applied to computer programs can interfere with legitimate preservation activities. The Software Preservation Network (“SPN”) and the LCA filed a petition that would allow “libraries, archives, museums, and other cultural heritage institutions” to circumvent TPMs on “lawfully acquired software for the purposes of preserving software and software-dependent materials.”¹⁴²⁷

¹⁴²⁷ SPN & LCA Class 9 Pet. at 2.

Because the issues in this class are relevant to the analysis in Proposed Class 8, which pertains specifically to video games, the Acting Register addresses this class first.

SPN and LCA explained that their proposed exemption is intended to enable cultural heritage institutions to preserve both TPM-protected computer programs as well as “dependent” materials—“writings, calculations, software programs, etc.” stored in digital formats that are inaccessible without running the underlying program.¹⁴²⁸ SPN and LCA proposed that the exemption define “computer program” as “any device program or application that: (1) allows a user to interact with a device, (2) allows other programs or applications to complete instructed tasks, and/or (3) otherwise allows the device to function.”¹⁴²⁹ They proposed defining “computer program-dependent materials” to include “all digital file formats where accessibility depends on a software program.”¹⁴³⁰

In response to concerns raised by opponents that the initial proposal was overbroad, SPN and LCA in their reply comments proposed narrower regulatory language. This updated proposal defines “computer program” in accordance with section 101 and limits the proposed class of works to computer programs no longer reasonably available in the commercial marketplace. Thus, SPN and LCA’s current proposed language is as follows:

- 1) Computer programs that have been lawfully acquired and which are no longer reasonably available in the commercial marketplace, for the purpose of preserving a computer program and/or a computer program-dependent material when a technological protection measure of a computer program renders either the computer program or computer program-dependent material inaccessible;
 - a) Provided that such activity is undertaken by an eligible library, archive, museum, or other cultural heritage institution, where such activities are carried out without any purpose of direct or indirect commercial advantage and the computer program is not distributed or made available to the public outside of the premises of eligible institutions.
- 2) For the purposes of the exemption in paragraph (1), the following definitions shall apply:

¹⁴²⁸ SPN & LCA Class 9 Initial at 4.

¹⁴²⁹ *Id.*

¹⁴³⁰ *Id.*

- a) A “computer program” is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.
- b) “Computer program-dependent material” refers to a digital file where accessibility requires a computer program.
- c) A library, archive, museum, or other cultural heritage institution is considered “eligible” when it meets criteria laid out in 17 U.S.C. § 108(a)(2): that the institution is (i) open to the public, or (ii) available not only to researchers affiliated with the library or archives or with the institution of which it is a part, but also to other persons doing research in a specialized field.¹⁴³¹

Additional comments in support of the petition were filed by FSF, Andrew Berger, Nick Montfort, and Edward Salas. Comments in opposition were filed by ACT, Joint Creators II, ESA, the Software and Information Industry Association (“SIIA”), DVD CCA and AACLS LA, and BSA. After SPN and LCA submitted their narrowed proposal, however, ACT participated in the hearing as a supporter of the exemption, though its representative expressed some disagreement regarding the proposed language.¹⁴³²

b. Overview of Issues

Proponents assert that the requested exemption is necessary because many cultural heritage institutions have collections of historically or culturally significant computer programs that they are unable to properly preserve due to various TPMs preventing access.¹⁴³³ This in turn thwarts the preservation of numerous digital files that were created using the TPM-protected program and that require that program for access. Proponents contend that this lack of access not only prevents valuable research in a variety of fields, but also could lead to the permanent loss of important portions of the recent historical record, as many of these materials are stored in obsolete, fragile, or deteriorating formats.¹⁴³⁴

According to proponents, institutions typically encounter these TPMs in attempting to create or access preservation copies of computer programs stored in older media formats. They note that current best practices for digital preservation “are universally predicated on data migration, which means the transfer of data from fragile, historical media to the robust technical systems that have been designed for digital

¹⁴³¹ SPN & LCA Class 9 Reply at 18.

¹⁴³² See Tr. at 190:24–193:12 (Apr. 12, 2018) (Zuck, ACT).

¹⁴³³ See SPN & LCA Class 9 Initial at 6–9.

¹⁴³⁴ See *id.*

preservation.”¹⁴³⁵ In some cases, a TPM prevents the copying of the program from its original media to the institution’s computer system.¹⁴³⁶ In other cases, preservationists are able to migrate the program data to their system, but access controls on the program prevent them from running the new copy.¹⁴³⁷ As a result, they can neither verify the validity of that copy nor make it available for research purposes.¹⁴³⁸ This renders preservation effectively “a meaningless activity.”¹⁴³⁹

Proponents identify several types of TPMs that they believe inhibit their efforts. These include (1) product keys, which are “‘unique, alpha-numeric code[s]’ that are required to be entered upon installation of computer software”; (2) passwords; (3) online authentication; (4) bad sector copy protection, which “protects against copying by rendering some portions of the storage media unreadable when copied”; (5) time restrictions preventing software from running after expiration of a subscription; (6) CD-checks preventing software from installing or running unless the disc is in the computer; and (7) dongles, “a form of hardware, such as a USB stick, that must be inserted into the computer to run software.”¹⁴⁴⁰

¹⁴³⁵ *Id.* at 29 (statement of Henry Lowood, Stanford Univ.).

¹⁴³⁶ *See id.* at 26 (statement of Heath Reinhard, Living Computs. Museum + Labs.) (“[M]any of the software titles we would like to preserve and exhibit have some form or another of copy protection that does not allow us to legally make copies.”); Berger Class 9 Reply at 6 (stating that TPMs prevent “[t]he act of copying data from physical media, when the TPM is designed to prevent making copies”); Tr. at 173:07–11 (Apr. 12, 2018) (Lowood, Stanford Univ.).

¹⁴³⁷ *See* Berger Class 9 Reply at 6.

¹⁴³⁸ *See id.* at 2; Tr. at 173:12–17 (Apr. 12, 2018) (Lowood, Stanford Univ.).

¹⁴³⁹ SPN & LCA Class 9 Initial at 29 (statement of Henry Lowood, Stanford Univ.); *see also* SPN & LCA Class 9 Initial at 3.

¹⁴⁴⁰ SPN & LCA Class 9 Initial at 5–6 (citation omitted). The Register has previously concluded that obsolete operating systems and obsolete hardware are not TPMs within the meaning of section 1201. *See* 2006 Recommendation at 30–33. In other words, where a computer program is inaccessible simply because the operating system or hardware on which it was designed to run is no longer available, and the program is incompatible with newer systems or hardware, the obsolete system or hardware does not constitute a “technological measure that effectively controls access to” the program. 17 U.S.C. § 1201(a)(1). Therefore, gaining access to such a program would not require an exemption. By contrast, the current proposed class involves programs that are inaccessible because of TPMs that were affirmatively put in place, typically at the time the programs were made. Further, while opponents suggest that proponents are encountering not access controls but copy controls, the circumvention of which is not barred by section 1201(a)(1), *see* SIIA Class 9 Opp’n at 4 & n.8; Tr. at 246:16–25 (Apr. 12, 2018) (Williams, Joint Creators II), the record establishes that at least some of the TPMs referred to by proponents do qualify as access controls.

Although proposed Class 9 would constitute a new exemption, proponents note that the Register recommended, and the Librarian granted, exemptions for software preservation in 2003 and 2006.¹⁴⁴¹ Those exemptions allowed circumvention of access controls on “[c]omputer programs and video games distributed in formats that have become obsolete” and that “require the original media or hardware as a condition of access.”¹⁴⁴² “Obsolete” formats were defined largely in accordance with 17 U.S.C. § 108(c); a format was considered obsolete “if the machine or system necessary to render perceptible a work stored in that format is no longer manufactured or is no longer reasonably available in the commercial marketplace.”¹⁴⁴³ The 2006 exemption included the additional condition that the circumvention be “accomplished for the purpose of preservation or archival reproduction of published digital works by a library or archive.”¹⁴⁴⁴ Proponents describe their proposal as “a continuation of the digital preservation effort that the Copyright Office and the Librarian had recognized” in adopting those exemptions.¹⁴⁴⁵

Opponents contend that the proposal is overbroad in several respects. First, they argue that the exemption would improperly allow circumvention for activities beyond those provided for in the section 108 exceptions for libraries and archives. They note that the 2003 and 2006 exemptions were limited to programs stored in obsolete formats—works that section 108(c) specifically allows libraries and archives to copy for replacement purposes.¹⁴⁴⁶ Second, opponents object that the term “computer program-dependent materials” might be read to sweep in any category of copyrightable work.¹⁴⁴⁷ Third, Joint Creators II and SIIA object to including “other cultural heritage institutions” within the class of beneficiaries—a term that they note is undefined.¹⁴⁴⁸ Finally, ESA and DVD CCA/AACS LA request that any exemption exclude particular types of programs (video

¹⁴⁴¹ SPN & LCA Class 9 Initial at 3.

¹⁴⁴² 37 C.F.R. § 201.40(b)(2) (2007); *id.* § 201.40(b)(3) (2004).

¹⁴⁴³ *Id.* § 201.40(b)(2) (2007); *id.* § 201.40(b)(3) (2004).

¹⁴⁴⁴ *Id.* § 201.40(b)(2) (2007). The proponents of these exemptions did not seek their re adoption in subsequent rulemakings.

¹⁴⁴⁵ SPN & LCA Class 9 Initial at 3.

¹⁴⁴⁶ ACT Class 9 Opp’n at 3 (“The Copyright Office should again follow the guidance of section 108 and limit the proposed exemption to obsolete software.”); BSA Opp’n at 3 (“[O]nly Section 108 provides a solid basis for such non-infringing uses, and it provides such a basis only with respect to works distributed in obsolete formats, including computer programs not reasonably available in the commercial marketplace.”); Joint Creators II Class 9 Opp’n at 4–5 (“As the Register has done in prior cycles, she should use the current § 108 as a guideline to assess whether the uses at issue are noninfringing.”).

¹⁴⁴⁷ ESA Class 9 Opp’n at 2–3; Joint Creators Class 9 Opp’n at 3–4; SIIA Class 9 Opp’n at 3.

¹⁴⁴⁸ Joint Creators Class 9 Opp’n at 3 n.2; SIIA Class 9 Opp’n at 3.

games and CSS and AACS technologies, respectively).¹⁴⁴⁹ Notwithstanding these concerns, a number of opponents indicate that they would not object to a more narrowly tailored exemption for software preservation.¹⁴⁵⁰

With respect to video games specifically, ESA contends that this proposed class would overlap with the existing video game exemption, which enables eligible libraries, archives, and museums to preserve games for which external server support has been discontinued.¹⁴⁵¹ It argues that SPN and LCA's proposal would effectively expand that exemption.¹⁴⁵² In ESA's view, it would be "needlessly confusing" for video game preservation to be "governed by two separate exemptions targeting the same uses with two different sets of rules."¹⁴⁵³

SPN and LCA filed reply comments stating that they are "willing to narrow their initial proposal to assuage some of the concerns of opponents," specifically, by limiting the exemption to programs that are no longer reasonably available in the commercial marketplace.¹⁴⁵⁴ As to the other objections, however, SPN and LCA respond that "the proposed limitations suggested by opponents are far too narrow to accommodate pressing needs for software preservation."¹⁴⁵⁵ Regarding video games, they note that the current preservation exemption is limited to games that require an external server for access, while this proposal addresses a separate need for preservation of non-server-based games.

2. Discussion

a. Works Protected by Copyright

The proposed exemption would apply to TPMs controlling access to computer programs, which are protectable under the Copyright Act.¹⁴⁵⁶ Therefore, the Acting

¹⁴⁴⁹ See DVD CCA & AACS LA Class 9 Opp'n at 4; ESA Class 9 Opp'n at 6–7.

¹⁴⁵⁰ See ACT Class 9 Opp'n at 2 ("The App Association does not oppose granting the proposed exemption . . . if [it] includes the obsolescence limitation used in previous rulemakings."); BSA Class 9 Opp'n at 1 ("BSA supports a proposed exemption to enable preservation of software and software-dependent materials . . . provided the class of works to which the exemption applies is limited to works stored on 'obsolete' formats, including computer programs no longer reasonably available in the commercial marketplace."); see also SIIA Class 9 Opp'n at 5 (similar).

¹⁴⁵¹ ESA Class 9 Opp'n at 3–4.

¹⁴⁵² *Id.* at 5.

¹⁴⁵³ *Id.* at 6.

¹⁴⁵⁴ SPN & LCA Class 9 Reply at 3, 9.

¹⁴⁵⁵ *Id.* at 3.

¹⁴⁵⁶ See 17 U.S.C. § 101 (definition of "computer program").

Register finds that the proposed class includes at least some works protected by copyright.

b. Asserted Noninfringing Uses

Proponents advance three bases for finding their proposed activities to be noninfringing: (1) the fair use doctrine, (2) the section 108(c) exception for library and archival replacement copies, and (3) the section 117(a) exception for archival copies of computer programs.¹⁴⁵⁷ Because the limitations of section 108(c) are relevant to the parties' fair use arguments, the Acting Register will address that provision first.

i. Section 108(c)

Section 108(c) authorizes an eligible library or archives to make three copies of a published work solely for purposes of replacing a copy that is damaged, deteriorating, lost, or stolen, "or if the existing format in which the work is stored has become obsolete."¹⁴⁵⁸ A format is considered obsolete "if the machine or device necessary to render perceptible a work stored in that format is no longer manufactured or is no longer reasonably available in the commercial marketplace."¹⁴⁵⁹ To qualify for the exception, the institution must have first determined, after a reasonable effort, that an unused replacement cannot be obtained at a fair price.¹⁴⁶⁰ If a replacement copy is made in digital format, it may not be made available to the public in that format outside the institution's premises.¹⁴⁶¹

Proponents contend that a portion of the activities for which they seek an exemption are within the scope of section 108(c), and at least two of the opponents appear to agree.¹⁴⁶² Proponents indicate that their preservation work includes migrating programs from older formats such as 8- or 5.25-inch floppy disks to modern systems to "preserve the

¹⁴⁵⁷ Proponents also address section 108(h), which authorizes libraries and archives to make certain uses of published works during the twenty years of their copyright term, but they note that this provision "is usually inapplicable to digital preservation efforts." SPN & LCA Class 9 Initial at 14.

¹⁴⁵⁸ 17 U.S.C. § 108(c).

¹⁴⁵⁹ *Id.*

¹⁴⁶⁰ *Id.* § 108(c)(1).

¹⁴⁶¹ *Id.* § 108(c)(2).

¹⁴⁶² See ACT Class 9 Opp'n at 3 ("The Copyright Office should again follow the guidance of section 108 and limit the proposed exemption to obsolete software."); BSA Class 9 Opp'n at 6-7 (stating that the petition "appears to satisfy [the statutory] burden with respect to works distributed on obsolete formats, including computer programs no longer reasonably available in the commercial marketplace").

content on these disks for future access.”¹⁴⁶³ Such storage formats clearly meet the statutory definition of “obsolete,” and given that proponents’ request is limited to non-commercially available programs, no unused replacements are likely to be available. Moreover, proponents note that “[i]n some instances, libraries and archives are able to limit the number of copies of digital material that they possess to the three stipulated by 17 U.S.C. § 108(c).”¹⁴⁶⁴ In addition, consistent with section 108(c), the proposed exemption would require that the institution not make copies available to the public outside its premises.¹⁴⁶⁵ The Acting Register thus agrees that insofar as proponents’ request includes these particular types of preservation activities by libraries and archives, the uses likely are noninfringing under section 108(c).

Proponents hasten to note, however, that section 108(c) “covers only a slim subsection” of the activities in which they seek to engage.¹⁴⁶⁶ They point out that digital preservation often necessitates the creation of “multiple temporary copies—which, while limited in duration, may nevertheless constitute ‘copies’ that violate the three-copy rule” under the statute.¹⁴⁶⁷ This concern is consistent with the Copyright Office’s longstanding view that the three-copy limit does not adequately accommodate the requirements of modern digital preservation practices.¹⁴⁶⁸ Proponents additionally note that section 108(c) does not allow modification of a work, which they indicate is usually required when migrating a program to new storage media.¹⁴⁶⁹ Further, they note that section 108 applies only to libraries and archives—a limitation that excludes other institutions, such as museums, involved in software preservation.¹⁴⁷⁰

In addition, proponents argue that section 108(c) does not capture the full range of software for which there is a legitimate preservation need. The statute’s definition of an obsolete format, they note, is based on whether the machine or device necessary to make the work perceptible is still commercially available.¹⁴⁷¹ As a result, they contend, if the

¹⁴⁶³ SPN & LCA Class 9 Initial at 15.

¹⁴⁶⁴ *Id.* at 15–16.

¹⁴⁶⁵ *See* SPN & LCA Class 9 Reply at 18.

¹⁴⁶⁶ SPN & LCA Class 9 Initial at 14–15.

¹⁴⁶⁷ *Id.* at 16.

¹⁴⁶⁸ Section 108 Discussion Document at 25 (“Making a single end-use digital copy . . . may require making more than three copies in the process.”).

¹⁴⁶⁹ SPN & LCA Class 9 Initial at 16, 29 (statement of Henry Lowood, Stanford Univ.) (“Use of historical software requires installation on contemporary hardware platforms or development of an emulation solution. Usually some modification of the original software will be necessary, in either case.”).

¹⁴⁷⁰ *Id.* at 16.

¹⁴⁷¹ SPN & LCA Class 9 Reply at 10.

exemption were to incorporate that limitation, TPM-protected programs that are commercially unavailable but that are stored in non-obsolete formats may be unavailable for preservation for many years. For example, “a work of software no longer reasonably commercially available and stored only on CDs . . . could not be preserved until CD drives were no longer sold,” during which time the software may significantly deteriorate.¹⁴⁷² Proponents further argue that the concept of format obsolescence is a poor fit for the growing number of programs distributed via download rather than in physical media.¹⁴⁷³ They accordingly urge that the class of works be defined more broadly to include any computer program that is no longer reasonably available in the commercial marketplace, regardless of the format in which it is stored.¹⁴⁷⁴

Because not all of the proposed uses are protected by section 108(c), proponents must demonstrate that their additional proposed activities are likely noninfringing on separate legal grounds.

ii. Fair Use

1) Applicability of Fair Use

Before considering the merits of proponents’ fair use arguments, the Acting Register first addresses a threshold contention by opponents that she should not look to fair use as a basis for expanding the exemption beyond the limitations of section 108. Opponents note that the 2003 and 2006 software preservation exemptions were limited to programs in obsolete formats and that the Register expressly declined to recommend broadening them based on fair use.¹⁴⁷⁵ In their view, there is no basis for the Acting Register to revisit those determinations.¹⁴⁷⁶ Joint Creators II further contend that it would be premature to recommend an exemption going beyond section 108 until Congress acts on formal recommendations from the Office regarding legislative updates to that provision.¹⁴⁷⁷

¹⁴⁷² *Id.*

¹⁴⁷³ *Id.* at 11 (“A literal reading of the obsolescence language from § 108 . . . might mean that preservationists would have to wait until computers are no longer commercially available” before preserving a video game distributed only via download.).

¹⁴⁷⁴ *Id.* at 11.

¹⁴⁷⁵ Joint Creators II Class 9 Opp’n at 6–7 (citing 2003 Recommendation at 54–55 and 2006 Recommendation at 29); BSA Class 9 Opp’n at 5 (same).

¹⁴⁷⁶ BSA Class 9 Opp’n at 5; Tr. at 206:05–14 (Apr. 12, 2018) (Williams, Joint Creators II).

¹⁴⁷⁷ Joint Creators II Class 9 Opp’n at 12–13; Tr. at 206:20–207:07 (Apr. 12, 2018) (Williams, Joint Creators II).

In her analysis of the 2003 and 2006 exemptions, the Register recognized that “some preservation activity beyond the scope of §108 may well constitute a fair use.”¹⁴⁷⁸ She concluded, however, that the record was inadequate to demonstrate a need for a broader exemption on that basis. As explained in the 2003 Recommendation, “[u]nless particular facts about the use of particular works are presented to reveal that the §108(c) exemption is insufficient, and unless these particular facts could be analyzed under §107 to establish a likelihood that fair use is applicable, it would be improper in this rulemaking to go beyond the express congressional parameters contained in the DMCA amendments to §108.”¹⁴⁷⁹ Absent such evidence, the Register was reluctant to make “sweeping generalizations” about the possible application of fair use, noting that “disparate works may be involved in the preservation activity and the effect on the potential market for the work may vary.”¹⁴⁸⁰

The current proceeding does not present these same concerns. In contrast to the prior rulemakings, and as detailed above, proponents have put forward substantial evidence establishing that section 108(c) does not fully cover the activities for which they believe there is a legitimate need for an exemption. Moreover, notwithstanding the concerns expressed in 2003 and 2006, the Office more recently has considered exemptions on the basis of fair use even where a specific statutory exception also addresses the subject matter.¹⁴⁸¹ Indeed, in the closely related context of video game preservation, the Register in 2015 analyzed the proposed exemption under fair use, while noting that section 108 “provides useful and important guidance as to Congress’s intent regarding the nature and scope of legitimate preservation activities.”¹⁴⁸² That approach is consistent with the statute, which includes a savings clause expressly providing that nothing in section 108 “in any way affects the right of fair use as provided by section 107.”¹⁴⁸³ It is also

¹⁴⁷⁸ 2003 Recommendation at 54–55; *accord* 2006 Recommendation at 29–30. In fact, the Register noted in 2006 that “[i]n such cases, the exemption for this class of works should also be available.” 2006 Recommendation at 30.

¹⁴⁷⁹ 2003 Recommendation at 55.

¹⁴⁸⁰ *Id.*

¹⁴⁸¹ *See* 2015 Recommendation at 169 (unlocking exemption) (“[U]nlike past rulemakings where the finding of noninfringing use rested solely on section 117, the Register here also concludes that the exemption is likely to facilitate fair use of the computer programs on the covered devices.”), 234–37 (same regarding vehicle repair exemption), 300–03 (same regarding vehicle software security research), 368–71 (same regarding exemption for 3D printing).

¹⁴⁸² *Id.* at 342.

¹⁴⁸³ 17 U.S.C. § 108(f)(4); *see also HathiTrust*, 755 F.3d at 94 n.4 (relying on savings clause to reject argument that section 108 foreclosed analysis under fair use); H.R. REP. NO. 94-1476, at 74, *reprinted in* 1976 U.S.C.C.A.N. 5687–88 (“No provision of section 108 is intended to take away any rights existing under the fair use doctrine.”); Section 108 Discussion Document at 14 (“[T]he

consistent with the Copyright Office's view on the importance of ensuring that "fair use remains an important safety valve [that] is available to libraries and archives in situations not addressed by the text of section 108."¹⁴⁸⁴

The Acting Register accordingly will consider proponents' argument that their activities are likely fair uses. Opponents do not directly contest that argument.

2) *Discussion*

Proponents seek to enable eligible libraries, archives, museums, and other cultural heritage institutions to reproduce and, where necessary, modify lawfully acquired copies of TPM-protected computer programs no longer reasonably available in the commercial marketplace to preserve such programs and/or program-dependent materials. They also seek to make the programs available for research exclusively on the premises of the institution. Under the proposed exemption, these activities could not be carried out with any purpose of direct or indirect commercial advantage, and the class of beneficiaries would be limited to institutions meeting the criteria in section 108(a)(2)—those that are open to the public, or available not only to researchers affiliated with the institution, but also to other persons doing research in a specialized field.¹⁴⁸⁵ In addition, both proponents and opponents stated that they would not object to incorporating the further eligibility conditions proposed in the Office's recent Section 108 Discussion Document: (1) that the institution have a public service mission; (2) that the institution's trained staff or volunteers provide professional services normally associated with libraries, archives, or museums; (3) that the institution's collections are composed of lawfully acquired and/or licensed materials; and (4) that the institution implement reasonable digital security measures as appropriate for the activities permitted.¹⁴⁸⁶

With respect to proponents' desire to make programs available for on-premises access, this request is aimed primarily at enabling access by researchers for purposes of scholarship. A few statements, however, suggest a desire to make programs available more broadly. For example, proponents note that "[t]he Living Computers: Museum + Labs cannot put some of their software collection on display because the original floppy

savings clause . . . was designed as an appropriate backstop to fill in potential legal gaps not addressed by the existing specific exception.").

¹⁴⁸⁴ Section 108 Discussion Document at 16.

¹⁴⁸⁵ 17 U.S.C. § 108(a)(2).

¹⁴⁸⁶ Section 108 Discussion Document at 51; *see* Tr. at 250:11–251:07 (Albert, SPN); Tr. at 256:07–20 (Apr. 12, 2018) (Meyerson, SPN; Troncoso, BSA; Mohr, SIIA).

disks are easy to break. And without circumvention, they cannot make copies.”¹⁴⁸⁷ Proponents do not, however, elaborate on the nature of these displays or provide legal analysis of how they might affect the fair use inquiry. Therefore, the Acting Register will limit her fair use analysis to the reproduction and modification of programs for purposes of preservation and research, and will not consider whether exhibitions such as those referenced by proponents may also qualify as fair uses. The Register followed the same approach in considering the proposed exemption for video game preservation in 2015. There, the Register declined to define that exemption to include exhibiting games to the public in playable form because that activity implicated the public performance and display rights, and the proponents failed to address legal issues pertaining to those rights.¹⁴⁸⁸ As the Register explained, “[t]he performance and display of a video game for visitors in a public space is a markedly different activity than efforts to preserve or study the game in a dedicated archival or research setting.”¹⁴⁸⁹ In adopting this limitation, the Acting Register again “expresses no opinion on whether the exhibition activities proposed by proponents, insofar as they constitute public performances, would or could constitute fair or otherwise noninfringing uses. . . . [She] merely concludes that the lack of any legal or evidentiary record on this issue precludes such a finding.”¹⁴⁹⁰

Addressing the first fair use factor, the purpose and character of the use, proponents note that their activities are non-commercial and argue that “[p]reserving public access to information constitutes a public benefit and is strongly favored in the fair use analysis.”¹⁴⁹¹ They point to the legislative history of the Copyright Act, which states that “the making of duplicate copies for purposes of archival preservation certainly falls within the scope of ‘fair use.’”¹⁴⁹² They also cite case law holding that copying for preservation purposes can provide a significant public benefit.¹⁴⁹³ Proponents further contend that many of their contemplated uses are transformative in that “[p]reservation . . . serves a different purpose from the original commercial purpose of software—it

¹⁴⁸⁷ SPN & LCA Class 9 Initial at 8; *see also id.* at 26 (statement of Heath Reinhard, Living Computs. Museum + Labs) (“[M]any of the software titles we would like to preserve and exhibit have some form or another of copy protection that does not allow us to legally make copies.”).

¹⁴⁸⁸ 2015 Recommendation at 342 (“For example, would visitors’ interactions with the games be limited in some way, or would visitors be permitted to play games for extended periods of time?”).

¹⁴⁸⁹ *Id.*

¹⁴⁹⁰ *Id.* at 343.

¹⁴⁹¹ SPN & LCA Class 9 Initial at 10.

¹⁴⁹² *Id.* (quoting H.R. REP. NO. 94-1476, at 73, *reprinted in* 1976 U.S.C.C.A.N. at 5687).

¹⁴⁹³ *Id.* (citing *Authors Guild, Inc. v. Google Inc.*, 954 F. Supp. 2d 282, 293 (S.D.N.Y. 2013), and *Sudeman v. Seajay Soc’y, Inc.*, 142 F.3d 194, 203 (4th Cir. 1998)).

ensures that the preserved work will be available for research in the future.”¹⁴⁹⁴ They argue that software migration is analogous to the activity in *Connectix*, in which the Ninth Circuit held that the copying of video game console firmware to enable consumers to play games on a personal computer was transformative because it “afford[ed] opportunities for game play in new environments.”¹⁴⁹⁵ Proponents also rely on *White v. West Publishing Corp.*, where the court found the inclusion of copyrighted legal briefs in an online database to be transformative because it served the different purpose of “creating an interactive legal research tool.”¹⁴⁹⁶

The Acting Register agrees that the first factor weighs in favor of fair use. As an initial matter, it is arguable that the proposed activity would not be considered transformative because it is aimed at allowing software to perform its original function and does not “add[] something new, with a further purpose or different character.”¹⁴⁹⁷ The Acting Register finds it unnecessary to resolve that issue, however, because, as proponents note, the legislative history and case law make clear that library and archival preservation is a favored purpose under the fair use analysis. Moreover, as the Register previously recognized, section 108 “highlight[s] Congress’s recognition of preservation as an important social activity” and generally indicates “the types of uses that are most likely to qualify as fair in this area.”¹⁴⁹⁸ Here, the proposed exemption incorporates most of the key conditions in that provision, namely that the preservation activity must be undertaken by an institution meeting specified public access requirements, that no copies may be made available to the public outside the institution’s premises, and that the use may not be for purposes of commercial advantage. The Acting Register accordingly concludes that, even if the proposed uses would not be found transformative, their purpose and character are of a type that favors fair use.

Regarding the second factor, proponents contend that the nature of the copyrighted works favors fair use because many of the programs they seek to access are functional works such as “word-processing, spreadsheet, and database software,” which, in their view, derive value “from their functional ability to represent information that is owned or created by those seeking access.”¹⁴⁹⁹ They also rely on *Connectix* for the proposition that “copying to gain access to . . . functional elements [of a computer program] [is] more

¹⁴⁹⁴ *Id.* at 11.

¹⁴⁹⁵ *Connectix*, 203 F.3d at 606; see SPN & LCA Class 9 Initial at 11.

¹⁴⁹⁶ 29 F. Supp. 3d 396, 399 (S.D.N.Y. 2014); see SPN & LCA Initial at 11.

¹⁴⁹⁷ *Campbell*, 510 U.S. at 579.

¹⁴⁹⁸ 2015 Recommendation at 341–42.

¹⁴⁹⁹ SPN & LCA Class 9 Initial at 11 (citing *Sega*, 977 F.2d at 1526, *Am. Geophysical Union*, 60 F.3d at 925, and *Television Digest, Inc. v. U.S. Tel. Ass’n*, 841 F. Supp. 5, 10 (D.D.C. 1993)).

likely to be fair use.”¹⁵⁰⁰ Finally, they note that many of the programs are orphan works, the owners of which “may be bankrupt, dissolved, or dead.”¹⁵⁰¹

The Acting Register does not agree that the presence of so-called functional programs in the proposed class tips this factor in favor of fair use. Indeed, all computer programs are by definition functional,¹⁵⁰² as they are designed to accomplish a specific task, and for the Acting Register to conclude that as a general matter, uses of software are uniformly favored under the second factor would overlook cases which have found this factor to weigh against the fair use of computer programs.¹⁵⁰³ Moreover, as proponents have emphasized, the proposed class also includes video games, which are often highly expressive in nature.¹⁵⁰⁴ Nevertheless, the Register previously concluded that the second factor did “not necessarily negate a finding of fair use” where the copying and modification of video games were “necessary to allow continued legitimate use of the work.”¹⁵⁰⁵ The same conclusion applies here. Overall, the Acting Register concludes that while this factor is not necessarily favorable to fair use, it is of limited significance in the analysis.

As to the third factor, the amount and substantiality of the portion used, proponents acknowledge that their activities may involve copying programs in their entirety, but assert that “[p]roviding access to vintage software may, in some cases, be impossible without copying the whole work.”¹⁵⁰⁶ Relying on cases holding that it is sometimes necessary to copy an entire work to make a fair use, proponents contend that the amount they seek to copy is “reasonable in relation to the purpose of the copying.”¹⁵⁰⁷ The Acting Register agrees. The record indicates that “current digital preservation

¹⁵⁰⁰ *Id.* (citing *Connectix*, 203 F.3d at 604–05).

¹⁵⁰¹ *Id.* at 12.

¹⁵⁰² See 17 U.S.C. § 101 (defining a “computer program” as “a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result”); see also *Oracle Am., Inc. v. Google, Inc.*, 750 F.3d 1339, 1367 (Fed. Cir. 2014).

¹⁵⁰³ See, e.g., *Wall Data*, 447 F.3d at 780 (although the software products were “not purely creative,” the second factor weighed against fair use since they were developed over many years with substantial investment); *Cable/Home Commc’n Corp. v. Network Prods., Inc.*, 902 F.2d 829, 844 (11th Cir. 1990) (protective nature of embedded software that descrambled satellite-transmitted programming for subscribers weighed against a “decoding pirate chip” being a fair use).

¹⁵⁰⁴ See 2015 Recommendation at 338 (“[V]ideo games are highly expressive and thus at the core of copyright’s protective purposes.”).

¹⁵⁰⁵ *Id.* at 338.

¹⁵⁰⁶ SPN & LCA Class 9 Initial at 12.

¹⁵⁰⁷ *Id.* (citing *Bill Graham Archives v. Dorling Kindersley Ltd.*, 448 F.3d 605, 613 (2d Cir. 2006), and *Núñez v. Caribbean Int’l News Corp.*, 235 F.3d 18, 24 (1st Cir. 2000)).

practices are universally predicated on data migration,”¹⁵⁰⁸ a process that frequently requires making complete copies.¹⁵⁰⁹ The evidence further indicates that proponents seek to modify programs only to the extent necessary to allow them to perform their original functions on modern computer systems.¹⁵¹⁰ The Acting Register accordingly concludes that this factor does not weigh against a fair use finding.¹⁵¹¹

Finally, regarding the fourth factor, proponents argue that “[c]reating and maintaining copies for the purpose of archiving and scholarship do not interfere [with] the market for the work, making the impact on the copyright holders’ interest minimal.”¹⁵¹² They note that “[s]cholars require access to vintage word processing programs, design software, and the like in order to study them and the materials that depend on them, not for their original commercial purpose (creating text files, 3D designs, and so on).”¹⁵¹³ Proponents further argue that their proposed limitations on eligible users and uses, as well as the exclusion of commercially available works, eliminate any risk of market harm.

Although opponents did not directly address the fourth factor in written comments, Joint Creators II argued at the hearing that the inclusion of video games would harm the market for those works. ESA contends generally that many of the activities labelled “preservation” are infringing or would promote infringement, although the bulk of its concerns appear to relate to online game services.¹⁵¹⁴ ESA also advances substantially the same argument in reference to the fourth statutory factor under section 1201(a)(1)(C).¹⁵¹⁵ According to these opponents, the existing market for the rerelease of classic video games could be harmed if institutions are free to make such games available for members of the public to play on their premises.¹⁵¹⁶

¹⁵⁰⁸ *Id.* at 29 (statement of Henry Lowood, Stanford Univ.).

¹⁵⁰⁹ *See* Berger Class 9 Reply at 2.

¹⁵¹⁰ *See* SPN & LCA Class 9 Initial at 29 (statement of Henry Lowood, Stanford Univ.).

¹⁵¹¹ *Cf. HathiTrust*, 755 F.3d at 98–99 (holding that third factor favored fair use where libraries’ creation of digital copies of entire books was reasonably necessary to enable full-text search of digital repository).

¹⁵¹² SPN & LCA Class 9 Initial at 12.

¹⁵¹³ *Id.*

¹⁵¹⁴ ESA Class 9 Opp’n at 7–8 (citing ESA Class 8 Opp’n at 24–38).

¹⁵¹⁵ *See id.* at 8.

¹⁵¹⁶ *See* Tr. at 207:13–16 (Apr. 12, 2018) (Williams, Joint Creators II) (“[W]ith video games especially, there’s an incentive to preserve them because they are often rereleased, and so there can be market harm”); Tr. at 245:20–22 (Apr. 12, 2018) (Williams, Joint Creators II) (“[T]here’s a higher level demand for classic video games than there is for most pieces of classic functional software.”).

The Acting Register agrees with proponents that there is little risk of market harm in light of the proposal's significant limitations on qualifying users, uses, and works. As the Register concluded in recommending the current exemption for video game preservation, "allowing circumvention by appropriate entities solely for noncommercial preservation and research purposes—without distribution to or offsite access by members of the public, consistent with section 108—would not appear to carry a significant risk to the market."¹⁵¹⁷ That conclusion is particularly sound in this class, which is limited to programs no longer reasonably available in the commercial marketplace. With respect to video games, proponents agree that preservation of server-based games should continue to be governed by the existing exemption;¹⁵¹⁸ therefore, the uses proposed here would not extend to those works. As to non-server-based games, the Acting Register appreciates opponents' legitimate interest in preserving the market for reissued games, but nothing in the record suggests that the narrow preservation and research activities contemplated by this proposal would materially interfere with that market. In particular, opponents provided no evidence that the existing video game preservation exemption—which includes substantially the same safeguards as those in SPN and LCA's amended proposal—has had any such effect.¹⁵¹⁹ The Acting Register accordingly concludes that this factor favors fair use.

Based on the foregoing analysis, the Acting Register finds that proponents have met their burden of showing that the proposed uses are likely to be fair.

iii. Section 117

Proponents contend that their proposed exemption "also includes uses that may be non-infringing under 17 U.S.C. § 117."¹⁵²⁰ They refer specifically to section 117(a)(2), which authorizes the owner of a copy of a computer program to make or authorize the making

¹⁵¹⁷ 2015 Recommendation at 344.

¹⁵¹⁸ Tr. at 241:16–18 (Apr. 12, 2018) (Albert, SPN); *see also* SPN & LCA Class 9 Reply at 7 n.33 ("To the extent that there is direct overlap between the Class 8 exemption (existing or proposed) and this exemption, the more specific restrictions in Class 8 should apply.").

¹⁵¹⁹ In contrast to the existing video game preservation exemption, proponents here do not seek specific exemption language authorizing the jailbreaking of video game consoles. *Cf.* 37 C.F.R. § 201.40(b)(8)(ii). To the extent, however, that jailbreaking is necessary to preserve commercially unavailable, non-server based console software and/or video games dependent on that software, the proposed exemption likely would permit such activity, provided the other requirements are met. But as the Register concluded regarding the existing exemption, given the narrow class of eligible users and the limitations on permitted uses, the piracy risk normally associated with jailbreaking consoles would appear to be greatly diminished in this context. *See* 2015 Recommendation at 344.

¹⁵²⁰ SPN & LCA Class 9 Initial at 17.

of a copy or adaptation “for archival purposes only.”¹⁵²¹ According to proponents, “[t]here are many uses of TPM-protected software that qualify as non-infringing because they are for archival purposes under § 117(a)(2), and copies are necessary to eliminate the risk that the software will be damaged or destroyed.”¹⁵²²

Opponents respond that section 117(a)(2) does not protect proponents’ activities. Because section 117 applies only to the owner of a copy, not a licensee, SIIA suggests that this limitation excludes proponents because “most software that is not cloud-based is licensed and not sold.”¹⁵²³ BSA contends that the copies proponents describe are not the “back-up” copies covered by section 117, but instead are “use” copies to which the statute “is simply inapplicable.”¹⁵²⁴ BSA further notes that in 2003 and 2006 the Register declined to recommend expanding the software preservation exemption on the basis of section 117 because she concluded that the relevant activity “fit[] far more comfortably within the scope of §108 than that of §117.”¹⁵²⁵

In response to SIIA’s argument, proponents assert that ownership under section 117 “is a complex, fact-specific matter” and that “[i]t would be inappropriate to assume” that every transaction formally designated a license would fall outside the statute’s scope.¹⁵²⁶ They note that they “never suggested that § 117 will apply to all, or even most, software, but that it provides an alternate potential source of noninfringing uses applicable in some preservation cases.”¹⁵²⁷ In response to BSA, proponents argue that “[i]f copies made for purposes of archiving and preservation count as ‘use’ copies . . . § 117 would lose any applicability whatsoever.”¹⁵²⁸

The Acting Register finds the record insufficient to permit a determination of whether beneficiaries of the proposed exemption are likely to qualify as “owners” of the software copies within the meaning of section 117. As proponents correctly note, that inquiry is highly fact-specific and turns upon several factors. In the Second Circuit, these include (1) whether substantial consideration was paid for the copy; (2) whether the copy was created for the sole benefit of the purchaser; (3) whether the copy was customized to serve the purchaser’s use; (4) whether the copy was stored on property owned by the

¹⁵²¹ 17 U.S.C. § 117(a)(2).

¹⁵²² SPN & LCA Class 9 Initial at 18.

¹⁵²³ SIIA Class 9 Opp’n at 4 (emphasis omitted).

¹⁵²⁴ BSA Class 9 Opp’n at 6.

¹⁵²⁵ *Id.* at 6 & n.27 (citing 2006 Recommendation at 29, and 2003 Recommendation at 58–59).

¹⁵²⁶ SPN & LCA Class 9 Reply at 15 (citing *Vernor*, 621 F.3d at 1111, *Krause*, 402 F.3d at 124, and 2015 Recommendation at 336).

¹⁵²⁷ *Id.* at 15–16.

¹⁵²⁸ *Id.* at 16.

purchaser; (5) whether the creator reserved the right to repossess the copy; (6) whether the creator agreed that the purchaser had the right to possess and use the programs forever regardless of whether the relationship between the parties terminated; and (7) whether the purchaser was free to discard or destroy the copy anytime it wished.¹⁵²⁹ In the Ninth Circuit, “a software user is a licensee rather than an owner of a copy where the copyright owner (1) specifies that the user is granted a license; (2) significantly restricts the user’s ability to transfer the software; and (3) imposes notable use restrictions.”¹⁵³⁰

Proponents have introduced no evidence that would allow these factors to be resolved either in favor of or against a finding of ownership. While one might assume that the proposed class includes at least some copies of programs that qualify as “owned,” nothing in the record enables the Acting Register to reach that conclusion definitively, or to determine what proportion of the class such copies might represent. Proponents’ acknowledgement that section 117 may not cover “even most” of the proposed class only underscores this lack of evidence.¹⁵³¹ Thus, the Acting Register cannot conclude, on a class-wide basis, that the proposed uses would more likely than not be protected under section 117.¹⁵³² Proponents accordingly have failed to meet their burden of showing that their activities are likely noninfringing on this additional ground.¹⁵³³

c. Causation

The Acting Register finds that proponents have met their burden of showing that the prohibition on circumvention of access controls limits their ability to make the noninfringing uses described above. But for the prohibition on circumvention, eligible institutions likely could gain lawful access to the computer programs in the proposed class in order to engage in those activities.

¹⁵²⁹ *Krause*, 402 F.3d at 124.

¹⁵³⁰ *Vernor*, 621 F.3d at 1111.

¹⁵³¹ SPN & LCA Class 9 Reply at 15.

¹⁵³² See 17 U.S.C. § 1201(a)(1)(C) (Register must determine “whether . . . users of a copyrighted work . . . are likely to be . . . adversely affected in their ability to make noninfringing uses . . . of a particular class of copyrighted works”) (emphasis added).

¹⁵³³ In 2003, the Register found section 117(a)(2) inapplicable to the proposed software preservation activities on the ground that it applies only to software at risk of damage or destruction by mechanical or electrical failure, though acknowledging that the case law on that issue was not uniform. See 2003 Recommendation at 56–57 & nn.101–03 (collecting cases and treatises). The Register also concluded that section 117(a)(2) is limited to the creation of backup copies and does not cover copies that will be used. See *id.* at 58. While the Acting Register need not revisit those conclusions in light of proponents’ failure to establish ownership, reliance on section 117(a)(2) also would require these issues to be resolved in proponents’ favor.

d. Asserted Adverse Effects

Because this proposed exemption is limited to circumvention for nonprofit preservation and research purposes, and the parties' arguments under the first three statutory factors address substantially overlapping issues, the Acting Register considers these factors together.

Proponents argue that circumvention is necessary "to allow preservationists to preserve, keep running, and thus increase the availability of TPM-protected software," and thereby "ensure[] that software and software-dependent material remain available for archival, preservation, research, and educational purposes."¹⁵³⁴ Without an exemption, they contend, much of this material could be lost permanently, either because future systems will be unable to run it or because it is stored in deteriorating media.¹⁵³⁵ Proponents further argue that an exemption will advance the burgeoning study of computer programs "as cultural and scientific artifacts."¹⁵³⁶ In addition, they believe the proposed exemption would aid the development of new software by facilitating research into the functioning of older programs.¹⁵³⁷

With respect to potential alternatives to circumvention, proponents contend that the use of modern software purportedly compatible with older programs is not always reliable:

Digital work loaded by backwards-compatible software, if it exists, can distort the original material. Backwards compatibility sometimes relies on converting the original data into a contemporary file format; this can cause data loss or be impossible without access to the original software. Architectural designs may be rendered without objects no longer supported by current versions. Music and visual art may be missing key components that were supported by community-created plugins that are not compatible with current software.¹⁵³⁸

Proponents further assert that the use of a more recent version of a program is not an adequate alternative "where a particular version of the software is itself the subject" of research.¹⁵³⁹

¹⁵³⁴ SPN & LCA Class 9 Initial at 19.

¹⁵³⁵ *Id.* at 6, 19; SPN & LCA Class 9 Reply at 10.

¹⁵³⁶ SPN & LCA Class 9 Initial at 19.

¹⁵³⁷ *Id.* at 20.

¹⁵³⁸ *Id.* at 7–8.

¹⁵³⁹ Berger Class 9 Reply at 7.

Among opponents, only ESA directly addresses these statutory factors, and only with respect to video games. ESA disputes that an exemption is necessary to facilitate game preservation. First, it contends that “video game publishers have strong economic incentives to preserve their own games, which are often issued and re-issued in patterns common to other forms of creative content, such as film and music.”¹⁵⁴⁰ Second, it notes that there already exist “extensive video game preservation programs” and that ESA and its members are engaged in cooperative preservation efforts with public institutions.¹⁵⁴¹ Third, it argues that the current exemption for video game preservation “is sufficient to facilitate preservation by eligible institutions, and to facilitate subsequent research and study.”¹⁵⁴²

Proponents respond that the current video game preservation exemption is limited to games dependent on an external server for access. By contrast, they state, their proposal “covers a different set of TPMs and preservation activities—namely, software, including video games, that may not be preserved without circumvention of a TPM but are not necessarily reliant on a server.”¹⁵⁴³ They cite two examples of historic games, playable on the Commodore 64 system, sought to be preserved by the Living Computers: Museum + Labs that “did not rely upon a server as a TPM.”¹⁵⁴⁴ As noted, proponents agree that the current video game preservation exemption should continue to apply in the context of server-based games.

The Acting Register finds that these factors favor the requested exemption. Proponents have provided substantial evidence that granting the exemption would benefit preservation, education, and scholarship by facilitating the study of software and dependent materials that might otherwise be lost to history. The ability of researchers to operate and study historic software as it originally functioned is likely to promote commentary and teaching in a variety of disciplines. Furthermore, the preservation initiatives and reissues referenced by ESA may not provide adequate alternatives to circumvention with respect to the full range of preservationists’ activities involving video games. Those industry efforts, while laudable, may not include all of the titles

¹⁵⁴⁰ ESA Class 9 Opp’n at 7.

¹⁵⁴¹ *Id.*

¹⁵⁴² *Id.*

¹⁵⁴³ SPN & LCA Class 9 Reply at 7; *see also* Tr. at 241:04–09 (Apr. 12, 2018) (Albert, SPN) (“[W]e’re literally talking about . . . video games that were distributed on floppy discs for . . . the Iomega or the Commodore 64 . . .”).

¹⁵⁴⁴ SPN & LCA Class 9 Reply at 8 (discussing Battle Droidz and Dark Side). In providing these examples, proponents again indicate that Living Computers seeks to exhibit video games. *See id.* As noted above, the Acting Register is not recommending an exemption that would allow circumvention for purposes of exhibiting programs publicly. The Acting Register expresses no view as to whether such exhibits might implicate copyright owners’ exclusive rights.

that proponents have a legitimate interest in preserving, and rereleases may not always be identical to the games as originally issued. In addition, the existing video game preservation exemption does not obviate the need for this proposal because it does not provide a means of preserving non-server-based games.

As to the fourth statutory factor, for the same reasons discussed above in reference to the fourth fair use factor, the Acting Register finds that granting the proposed exemption is unlikely to adversely affect the market for or value of the computer programs in the proposed class.

Opponents suggest that the proposed exemption could harm the value of copyrighted works outside the class because of its reference to computer program-dependent materials. As noted, the proposed exemption would allow circumvention for the purpose of preserving both computer programs and program-dependent materials, defined as “digital file[s] where accessibility requires a computer program.”¹⁵⁴⁵ Opponents contend that this provision renders the proposal substantially overbroad. For example, Joint Creators II argue that “because . . . almost every type of work can now be accessed using software, it could be read to cover circumvention of technological protection measures to access all categories of copyrightable works for the purpose of preservation.”¹⁵⁴⁶ They urge that the language be omitted from any exemption, arguing that referring to dependent materials is unnecessary given that the proposed class of works is limited to computer programs.¹⁵⁴⁷

In response, proponents explain that the exemption is targeted towards circumvention of access controls placed on computer programs, which are a subcategory of literary works.¹⁵⁴⁸ Regarding the reference to computer-program dependent materials, “[t]he purpose of this language is to indicate that, under the proposed exemption, preservation of computer program-dependent material would be a permissible purpose for circumventing a TPM on a computer program.”¹⁵⁴⁹ In proponents’ view, this language is necessary for the exemption to apply in situations where an institution’s purpose in

¹⁵⁴⁵ *Id.* at 18.

¹⁵⁴⁶ Joint Creators II Class 9 Opp’n at 3–4; *see also* ESA Class 9 Opp’n at 3 (“The concept of ‘dependent materials’ appears to be an effort to back-door every type of copyrighted work into an exemption that is ostensibly about software.”); SIIA Class 9 Opp’n at 3 (similar).

¹⁵⁴⁷ *See* Tr. at 188:03–08 (Apr. 12, 2018) (Williams, Joint Creators II) (“I don’t think that there’s any reason to actually refer to dependent materials at all in any exemption if what you’re trying to circumvent to gain access to is only a piece of software that then gives you lawful access to another type of work without circumvention of any additional TPM.”).

¹⁵⁴⁸ SPN & LCA Class 9 Reply at 3–4.

¹⁵⁴⁹ *Id.* at 4.

circumventing a TPM controlling access to a computer program goes beyond the preservation of that underlying program.¹⁵⁵⁰

Based on proponents' clarification, it is apparent that their proposed class is limited to computer programs, meaning that the proposed exemption would allow circumvention only of TPMs on that type of work. The class thus qualifies as a "narrow and focused subset of the broad categories of works . . . identified in section 102."¹⁵⁵¹ While in most cases exemption language will not refer to works outside the class, here proponents have demonstrated a legitimate interest in preserving not only TPM-protected programs but also other digital materials dependent upon such programs for access, and that it would be helpful to stipulate that circumvention for that purpose is permissible in order for the intended beneficiaries to make use of the exemption. But it is unnecessary for the regulatory text to attempt to articulate the precise circumstances under which the preservation of program-dependent materials is noninfringing. Such an effort to define the lawful uses of works outside the class would seemingly exceed the proper scope of this rulemaking. Rather, it is sufficient for the exemption to provide that such preservation activity, to the extent lawful, is a permissible purpose for which an eligible user may engage in the circumvention covered by the exemption.

This approach is consistent with precedent from prior rulemakings. As noted above, this current class echoes the 2006 rulemaking, which resulted in the adoption of an exemption for circumvention of obsolete computer programs and video games for purposes of preservation.¹⁵⁵² That exemption permitted "circumvention . . . accomplished for the purpose of preservation or archival reproduction of *published digital works* by a library or archive," suggesting that it contemplated preservation of works other than computer programs.¹⁵⁵³ Moreover, the 2000 rulemaking produced a substantially broader exemption addressing issues of obsolescence. In that proceeding, the Register recommended, and the Librarian adopted, an exemption for the circumvention of "[l]iterary works, including computer programs and databases, protected by access control mechanisms that fail to permit access because of

¹⁵⁵⁰ See Tr. at 219:23–220:06 (Apr. 12, 2018) (Albert, SPN) ("[T]here [are] . . . really significant chilling effects from 1201, but also sort of a conservative bent to many practitioners of software preservation, especially in large institutions. And our goal here was to make very clear that if you are circumventing the TPM for the purposes of preserving the computer-dependent material, not just the computer program, that's still a thing covered by the exemption."); Tr. at 227:18–23 (Apr. 12, 2018) (Band, LCA) ("[U]nless . . . it's worded in such a way to make it clear that . . . you're not trying to just preserve the software [but] you're able to get to the Adobe file itself . . . there will be confusion.").

¹⁵⁵¹ Commerce Comm. Report at 38.

¹⁵⁵² 2006 Recommendation at 1.

¹⁵⁵³ 37 C.F.R. § 201.40(b)(2) (2007) (emphasis added).

malfunction, damage or obsolescence.”¹⁵⁵⁴ These precedents underscore that a general accommodation for preservation of program-dependent materials does not render the class overbroad.

The Acting Register concludes that an exemption defined in this manner is unlikely to adversely affect the market for or value of program-dependent materials. The exemption does not purport to expand the permissible uses of such materials beyond what is already allowed under existing law; it simply would facilitate such lawful uses where they depend on access to a separate program protected by a TPM. Furthermore, the fact that the class is limited to computer programs that are no longer commercially available would seem to minimize risk that the exemption could be used to access commercially available dependent materials. At the hearing, a university curator testified that he is unaware of any collection of obsolete software that would enable access to such materials, describing that concern as “a complete non-issue from a library perspective.”¹⁵⁵⁵ Opponents offer no evidence to the contrary. To the extent such a program *could* be used to access commercially available dependent materials, the existence of a market for those works would be an important factor in determining whether copying them for preservation purposes would be lawful. Where such activity is infringing, circumvention for that purpose would not be permitted under the exemption.

The Acting Register does not find any additional factors relevant to the asserted adverse effects in this proposed class. Based on the foregoing, the Acting Register finds that users are adversely affected by the prohibition on circumvention in their ability to engage in noninfringing preservation activities, or are likely to be so adversely affected during the next three years.

3. NTIA Comments

NTIA supports adopting the proposed exemption. In its view, the class is appropriately defined because it is limited to “computer programs, to preservation uses, and to preservation-oriented institutional users.”¹⁵⁵⁶ It agrees with proponents that the exemption should expressly refer to preservation of “computer program-dependent materials,” concluding that “a user would not be able to access those materials without preserving the software protected by a TPM.”¹⁵⁵⁷ It also agrees that the exemption should include video games, noting that proponents provided specific examples of

¹⁵⁵⁴ *Id.* § 201.40(b)(2) (2001).

¹⁵⁵⁵ Tr. at 234:13–235:05 (Apr. 12, 2018) (Lowood, Stanford Univ.).

¹⁵⁵⁶ NTIA Letter at 66.

¹⁵⁵⁷ *Id.* at 68.

games that may not be covered by the current preservation exemption.¹⁵⁵⁸ In addition, it finds that there are no reasonable alternatives to circumvention, as the use of software with backwards compatibility “is inadequate and can distort the original work.”¹⁵⁵⁹

NTIA also would grant proponents’ request to include “other cultural heritage institutions” within the class of eligible users.¹⁵⁶⁰ To define such institutions, it proposes adopting the eligibility conditions set out in the Section 108 Discussion Document.¹⁵⁶¹ NTIA would not, however, require libraries, archives, and museums to satisfy those criteria because, in its view, “the meaning and activities of those institutions are well-understood.”¹⁵⁶² But under the Section 108 Discussion Document’s proposal, those conditions would apply to libraries, archives, and museums, and in fact would apply *only* to those institutions.¹⁵⁶³ The Office did not recommend extending the section 108 exceptions to other entities meeting those criteria. As discussed below, the Acting Register concludes that this exemption likewise should be limited to libraries, archives, and museums.

4. Conclusion and Recommendation

In light of the foregoing, the Acting Register recommends granting an exemption that incorporates most of the substance of proponents’ request, with certain changes to address the concerns discussed above. First, the recommended language limits the eligible users to libraries, archives, and museums, as defined according to the criteria proposed in the Section 108 Discussion Document. The Acting Register declines to recommend including “other cultural heritage institutions” within the class of beneficiaries. While the Register in 2015 recommended including museums in the current video game preservation exemption, finding that they engage in preservation efforts similar to those of libraries and archives,¹⁵⁶⁴ the Acting Register cannot, on this record, reach the same conclusion with respect to “other cultural heritage institutions,” which is an undefined and potentially far-reaching term. The Acting Register believes, however, that the eligibility criteria are sufficiently flexible to encompass a broad spectrum of institutions.¹⁵⁶⁵

¹⁵⁵⁸ *Id.* at 66.

¹⁵⁵⁹ *Id.* at 69–70.

¹⁵⁶⁰ *Id.* at 67.

¹⁵⁶¹ *Id.* at 67 & n.334.

¹⁵⁶² *Id.* at 67 n.334.

¹⁵⁶³ *See* Section 108 Discussion Document at 18–21.

¹⁵⁶⁴ *See* 2015 Recommendation at 342.

¹⁵⁶⁵ Proponents do provide examples of institutions engaged in software preservation that “may not classify themselves as libraries, museums, or archives,” SPN & LCA Class 9 Reply at 6, but

Second, the recommended exemption incorporates proponents' suggestion that the class be defined as computer programs "that have been lawfully acquired and that are no longer reasonably available in the commercial marketplace." For purposes of this exemption, the Acting Register does not understand a program to be reasonably available in the commercial marketplace if it can be purchased only in second-hand stores. The availability of a second-hand copy of a program that is no longer being produced would not obviate the need for preservation, as the same concerns over deterioration and obsolescence would apply to that copy. Further, circumvention presumably still would be necessary to access such copies in most cases, as they are likely to have the same TPM protections as those in the user institution's collections. Moreover, this understanding is consistent with both the Register's 2003 Recommendation and the legislative history of section 108(c).¹⁵⁶⁶

Third, in lieu of including the phrase "computer program-dependent materials" as a defined term, the recommended exemption simply provides that circumvention is permitted for the purpose of "lawful preservation . . . of digital materials dependent upon a computer program as a condition of access." For the reasons discussed above, the Acting Register believes this language adequately addresses proponents' desire for clarity, making it unnecessary to define the class of dependent materials eligible for preservation—an issue best left for case-by-case determination under existing copyright law.

Finally, in response to ESA's concern over having video game preservation governed by two separate exemptions, the Acting Register recommends that the portion of this class pertaining to video games be codified in the existing preservation exemption. Thus, the new exemption discussed here would cover computer programs other than video games, while an addition to the prior exemption would provide for preservation of the games addressed by this class—those that do not require an external server for gameplay. The Acting Register's recommended regulatory language for such games is provided at the conclusion of the discussion of proposed Class 8 below. Preservation of server-based games would continue to be governed by that existing exemption.

the record does not always indicate that they would fail to qualify as such under the Office's proposed definition. In at least some instances, it seems they would. For example, proponents reference Rhizome, a digital institution that operates multiple archives and is affiliated with the New Museum. *See id.* (citing RHIZOME, <http://rhizome.org/about/> (last visited, Sept. 26, 2018)). Lyndsey Moulds, a software curator at Rhizome, testified at the hearing that museums have a particular need for this exemption. Tr. at 176:01–17 (Apr. 12, 2018) (Moulds, Rhizome).

¹⁵⁶⁶ *See* 2003 Recommendation at 51; S. REP. NO. 105-190, at 62 (1998).

Accordingly, the Acting Register recommends that the Librarian designate the following class:

(i) **Computer programs, except video games, that have been lawfully acquired and that are no longer reasonably available in the commercial marketplace, solely for the purpose of lawful preservation of a computer program, or of digital materials dependent upon a computer program as a condition of access, by an eligible library, archives, or museum, where such activities are carried out without any purpose of direct or indirect commercial advantage and the program is not distributed or made available outside of the physical premises of the eligible library, archives, or museum.**

(ii) **For purposes of the exemption in paragraph (b)(13)(i) of this section, a library, archives, or museum is considered “eligible” if—**

(A) The collections of the library, archives, or museum are open to the public and/or are routinely made available to researchers who are not affiliated with the library, archives, or museum;

(B) The library, archives, or museum has a public service mission;

(C) The library, archives, or museum’s trained staff or volunteers provide professional services normally associated with libraries, archives, or museums;

(D) The collections of the library, archives, or museum are composed of lawfully acquired and/or licensed materials; and

(E) The library, archives, or museum implements reasonable digital security measures as appropriate for the activities permitted by this paragraph (b)(13).

I. Proposed Class 8: Computer Programs – Video Game Preservation

1. Background

a. Summary of Proposed Exemption

Class 8 proponents seek to expand the current exemption that allows eligible institutions to circumvent access controls to preserve video games for which external server support has been discontinued.¹⁵⁶⁷ As explained in the 2015 Recommendation, some video games “require a network connection to a remote server operated by the game’s

¹⁵⁶⁷ 37 C.F.R. § 201.40(b)(8) (2016).

developer” before the video game can be accessed and played.¹⁵⁶⁸ When the developer takes such a server offline, a game can be rendered unplayable or limited to certain functions, such as single-player play or multiplayer play on a local network.¹⁵⁶⁹ The current exemption allows an eligible library, archives, or museum to circumvent this type of authentication mechanism to preserve lawfully acquired games. As relevant here, the exemption is limited to games acquired in “complete” form—those that can be played without accessing or reproducing copyrightable content stored or previously stored on an external computer server—and requires that the video game not be distributed or made available outside of the physical premises of the eligible institution.

The Museum of Art and Digital Entertainment (“MADE”) filed a petition seeking to expand the exemption to allow for circumvention of video games that need to access creative content stored on a remote server, which MADE refers to as “online games.”¹⁵⁷⁰ It also seeks to broaden the class of users of the exemption, currently limited to eligible libraries, archives, or museums, to include volunteer “affiliate archivists” under the supervision of those entities. While nothing in the existing exemption prohibits library, archive, or museum volunteers from engaging in circumvention of TPMs to preserve video games, this request appears directed at loosening the current restriction on distributing or making the game available outside the institution’s physical premises.¹⁵⁷¹ Specifically, MADE proposes amending the existing exemption language by adding the language in bold below:

(i) Video games in the form of computer programs embodied in physical or downloaded formats that have been lawfully acquired as complete games, when the copyright owner or its authorized representative has ceased to provide access to an external computer server necessary to **either** facilitate an authentication process to enable local gameplay **or to conduct online gameplay**, solely for the purpose of:

(A) Permitting access to the video game to allow copying and modification of the computer program to restore access to the game for personal, **local** gameplay on a personal computer or video game console;
or

(B) Permitting access to the video game to allow copying and modification of the computer program to restore access to the game on a personal computer or video game console when necessary to allow

¹⁵⁶⁸ 2015 Recommendation at 321.

¹⁵⁶⁹ *Id.*

¹⁵⁷⁰ MADE Class 8 Pet. at 2; MADE Class 8 Initial at 2.

¹⁵⁷¹ 37 C.F.R. § 201.40(b)(8)(i)(B) (2016).

preservation of the game in a playable form by an eligible library, archives or museum, **or an eligible library, archives or museum's eligible affiliate**, where such activities are carried out without any purpose of direct or indirect commercial advantage and the video game is not distributed or made available **to the public** outside of the physical premises of the eligible library, archives or museum.

(ii) Computer programs used to operate video game consoles solely to the extent necessary for an eligible library, archives or museum, **or an eligible library, archives or museum's eligible affiliate**, to engage in the preservation activities described in paragraph (i)(B).

(iii) For purposes of the exemptions in paragraphs (i) and (ii), the following definitions shall apply:

(A) "Complete games" means video games that can be played by users without accessing or reproducing copyrightable content stored or previously stored on an external computer server, **or video games that can be played by users through lawful access of game content stored or previously stored on an external computer server.**

(B) "Ceased to provide access" means that the copyright owner or its authorized representative has either issued an affirmative statement indicating that external server support for the video game has ended and such support is in fact no longer available or, alternatively, server support has been discontinued for a period of at least six months; provided, however, that server support has not since been restored.

(C) "Local gameplay" means gameplay conducted on a personal computer or video game console, or locally connected personal computers or consoles, and not through an online service or facility.

(D) "Online gameplay" means gameplay conducted on a personal computer or video game console using an external computer server.

~~(D)~~ (E) A library, archives or museum is considered "eligible" when the collections of the library, archives or museum are open to the public and/or are routinely made available to researchers who are not affiliated with the library, archives or museum.

(F) An affiliate of a library, archives, or museum is considered “eligible” when engaged in the lawful preservation of video games under the supervision of an eligible library, archives, or museum.¹⁵⁷²

Comments supporting the proposed expansion were filed by Consumers Union, FSF, MADE, Public Knowledge, and forty-seven individuals.¹⁵⁷³ ESA and Joint Creators II oppose expanding the class.

b. Overview of Issues

In recommending an exemption for video game preservation in 2015, the Register noted “the enormous value of video games to our culture and economy.”¹⁵⁷⁴ While finding that “[t]he record clearly establishes that libraries and archives, along with museums, engage in valuable preservation activities with respect to video games,” she also found it necessary to refine the class definition to reflect the specific evidentiary findings in that proceeding.¹⁵⁷⁵

The existing exemption does not include games that require access to copyrightable content previously stored on an external server for two reasons. First, the 2015 proponents excluded from their request both games that reside entirely on a remote server and games that constitute “persistent worlds.”¹⁵⁷⁶ For many games, remote servers are used to host creative content such as characters, maps, or items, as well as copyrightable software architecture, and to allow for multiplayer play over the internet.¹⁵⁷⁷ Persistent worlds include games, such as massively-multiplayer online games (“MMOs”), that “require robust servers designed to host hundreds, if not thousands of simultaneous players, and cannot generally be re-created after a shutdown

¹⁵⁷² MADE Class 8 Initial at 6–8.

¹⁵⁷³ The individual commenters are Joshua Adams, Willis Adkins, Imran Aktar, Nathan Benedetti, Chris Boehm, Andrew Borman, Kristian Brucaj, Edward Burke, Stephen Burkett, Aaron Bush, Brandon Costner, Christian David, Michael Dobbs, John Dolph, Frank Randall “Randy” Farmer, Brendan Giddens, Mike Grafius, Edward Griffith, Jeff Hanson, Jerrod Howland, Sheryl Knowles, Joseph Kwiatkowski, Judah Lindsey, Drew Littrell, Jodee Luke, Nate Miller, David N, Taylor Nodell, Austin Olin, Craig Patterson, Michael Patukonis, Joe Public, Sean Raines, Devon Reynolds, Patrick Rorie, Brian Sears, Clifford Sheridan, Catherine Silverberg, Elijah Smith, Brian Spicer, Arthur Stubblefield, Matthew Temple, Johnny van Heteren, Travis Vandenbrul, John Williams, John Young, and one anonymous commenter.

¹⁵⁷⁴ 2015 Recommendation at 335.

¹⁵⁷⁵ *Id.* at 350–51.

¹⁵⁷⁶ *Id.* at 323.

¹⁵⁷⁷ *See* Tr. at 48:05–10 (Apr. 23, 2018) (Clarendon) (describing how a server engages in collision detection); Tr. at 40:18–21, 58:26–59:16 (Apr. 23, 2018) (Englund, ESA) (noting that maps and game logic are stored remotely).

without the cooperation of the game’s developer.”¹⁵⁷⁸ Because these types of games were not at issue in 2015, the current exemption excludes them through language limiting its reach to “complete games” — a requirement that the Register found to be “an important limitation.”¹⁵⁷⁹ The proposed expansion would extend the class to include multiplayer games, persistent worlds, and other video games where creative works are “stored or [were] previously stored on an external computer server.”¹⁵⁸⁰

Second, the Register also concluded that engaging in multiplayer play over the internet, generally, would likely implicate section 1201(a)(2)’s anti-trafficking provisions, as “[r]einstating multiplayer play may require not only replicating or creating new protocols that communicate with games, but also launching a new centralized server and distributing the new protocols to [remotely-located] gamers.”¹⁵⁸¹ Instead, the Register suggested that the two categories of users contemplated in the exemption — gamers who engage in continued recreational play and preservationists — could still engage in local multiplayer play at the same physical premises using, for example, multiple controllers on a single device or a local area network without the need to implement a new matchmaking service.¹⁵⁸²

MADE contends that the current exemption, while helpful, does not allow it to preserve the growing number of online video games for future generations to study.¹⁵⁸³ Proponents explain that libraries, archives, and museums (collectively “preservation institutions”) cannot engage in certain preservation activities involving online games without either copying the game’s server code or reconstructing that server’s functionality, which would also require an exemption to circumvent TPMs on these works.¹⁵⁸⁴

MADE asserts that there are multiple scenarios that could enable it to legally acquire a copy of the server code, including when the game’s copyright owners donate a copy to a preservation institution or potentially in circumstances where the work was taken home by an employee or salvaged.¹⁵⁸⁵ Copyright owners are also preserving server code

¹⁵⁷⁸ EFF 2015 Class 23 Initial at 2 (internal quotations and citations omitted).

¹⁵⁷⁹ 2015 Recommendation at 350.

¹⁵⁸⁰ MADE Class 8 Initial at 7; MADE Class 8 Pet. at 2.

¹⁵⁸¹ 2015 Recommendation at 346.

¹⁵⁸² *Id.* at 345.

¹⁵⁸³ MADE Class 8 Initial at 2–3.

¹⁵⁸⁴ MADE Class 8 Reply at 5 (preservation would be accomplished “through replication and modification of a game’s original online client-protocol-server architecture”); Tr. at 71:19–72:21 (Apr. 13, 2018) (Fries) (describing possessing and recreating server code).

¹⁵⁸⁵ Tr. at 23:04–12 (Apr. 23, 2018) (Handy, MADE) (noting that source code may be saved in people’s garages); Tr. at 69:05–09 (Apr. 13, 2018) (Fries) (noting that copies of games could be

themselves, even if the code is held privately.¹⁵⁸⁶ In rare instances, a publisher may sell a server to a private collector.¹⁵⁸⁷ But proponents explain that even where an institution possesses both a server and a local copy of the game, an exemption may be necessary to circumvent, for example, third-party billing software acting as a TPM.¹⁵⁸⁸ As an example, proponents describe MADE's efforts to preserve the game *Habitat*, for which they acquired a server copy via "two original authors of the game."¹⁵⁸⁹

If the preservation institution cannot lawfully acquire the server copy of the work, proponents seek to reconstruct the necessary server code. Proponents explain that they sometimes anticipatorily use an application program interface (or "API") on a local client to send instructions to a remote server and monitor the responses while the server is still up and running.¹⁵⁹⁰ Preservationists would save any content that has been pushed down from a server to local clients during gameplay, which could then be copied and used to recreate the game.¹⁵⁹¹ Finally, proponents plan to write new code that attempts to replicate the missing server code, which could include core expressive aspects of the game.¹⁵⁹² MADE explains that the amount of creative content that was stored on the server and would need to be reconstructed "varies from game to game."¹⁵⁹³

Proponents believe that the need for an exemption is immediate. They note that modern games increasingly require a remote server to run,¹⁵⁹⁴ citing data indicating that 90% of

taken home by employees or saved from dumpsters); *see also* Nathan Grayson, *Guy Finds StarCraft Source Code And Returns It To Blizzard, Gets Free Trip To BlizzCon*, KOTAKU (May 3, 2017), <https://kotaku.com/guy-finds-starcraft-source-code-and-returns-it-to-blizz-1794897125> (describing finding Blizzard's *StarCraft* source code in a box of items purchased on eBay).

¹⁵⁸⁶ Tr. at 56:11–19 (Apr. 23, 2018) (Englund, ESA).

¹⁵⁸⁷ *See* Luke Winkie, *These Players Loved Their WoW Servers So Much, They Bought the Old Hardware*, PCGAMER (Sept. 7, 2017), <https://www.pcgamer.com/these-players-loved-their-wow-servers-so-much-they-bought-the-old-hardware/> (noting that video game publisher Blizzard has auctioned off retired World of Warcraft blade servers).

¹⁵⁸⁸ Tr. at 69:17–25 (Apr. 23, 2018) (Walker, Samuelson Law, Tech. & Pub. Policy Clinic).

¹⁵⁸⁹ MADE Class 8 Initial at App. A-1; *see also* Tr. at 10:23–24 (Apr. 23, 2018) (Handy, MADE).

¹⁵⁹⁰ Tr. at 72:11–19 (Apr. 13, 2018) (Fries) (describing using an application program interface on a local copy of a game to recreate a server that acts like the original); *see also* Tr. at 34:24–35:10 (Apr. 23, 2018) (Walker, Samuelson Law, Tech. & Pub. Policy Clinic); Tr. at 31:12–16 (Apr. 23, 2018) (Clarendon).

¹⁵⁹¹ *See* Tr. at 32:04–09 (Apr. 23, 2018) (Clarendon).

¹⁵⁹² *See* Tr. at 86:05–08 (Apr. 23, 2018) (Handy, MADE) (describing recreating game maps on a new server); Tr. at 72:06–21 (Apr. 13, 2018) (Fries) (describing recreating server software).

¹⁵⁹³ Tr. at 27:26 (Apr. 23, 2018) (Handy, MADE).

¹⁵⁹⁴ MADE Class 8 Initial at 3–4; Public Knowledge Class 8 Initial at 3.

the top-grossing PC and mobile games in 2017 were online-only multiplayer games.¹⁵⁹⁵ Proponents further observe that companies have been moving more non-multiplayer content to remote servers to prevent cheating or to prevent players from having access to creative content they have not paid for or have not earned in-game.¹⁵⁹⁶ Finally, they note that for games released decades ago, the resources needed for restoration, including software engineers who know a game’s architecture, are becoming harder to find.¹⁵⁹⁷

Public Knowledge suggests that Class 8 should also include video games which may be currently available in the marketplace that have received software updates and are thus unsupported in their original form. Using the example of World of Warcraft, a game that has had several different updates to its code, Public Knowledge notes that it is difficult to determine whether a copyright owner or authorized representative ceased to provide access to an external computer in circumstances where an earlier version of a game is no longer available, but a later version of that same game remains supported.¹⁵⁹⁸ These later versions may include functional updates, security patches, or new creative, aesthetic features—all of which may be mandatory for users to continue to play the game.¹⁵⁹⁹ Public Knowledge suggests that fan-managed efforts to preserve the initial versions of these games have been met with resistance and cease-and-desist notices.¹⁶⁰⁰

Finally, Public Knowledge claims that it is increasingly unworkable to draw a distinction between single-player and multiplayer video games.¹⁶⁰¹ For example, games can include “light social networking elements,” progress saving and inventory synchronization, and limited interactions with third parties, which may demonstrate a spectrum between connected single-player and dedicated multiplayer games.¹⁶⁰² On this point specifically, the Acting Register notes that the current exemption does not draw a line between single-player and multiplayer games, but rather between complete and incomplete

¹⁵⁹⁵ Public Knowledge Class 8 Initial at 3 (citing Worldwide Digital Games Market: October 2017, SUPERDATA (Nov. 30, 2017), <https://www.superdataresearch.com/us-digital-games-market/>).

¹⁵⁹⁶ See Tr. at 73:24–74:15 (Apr. 13, 2018) (Fries).

¹⁵⁹⁷ See Tr. at 16:19–17:01 (Apr. 23, 2018) (Handy, MADE).

¹⁵⁹⁸ Public Knowledge Class 8 Initial at 5; Tr. at 90:13–94:03 (Apr. 13, 2018) (Rose, Public Knowledge); see also 37 C.F.R. § 201.40(b)(8)(iii)(B) (2016) (definition of “ceased to provide access”).

¹⁵⁹⁹ See Tr. at 93:10–15 (Apr. 13, 2018) (Rose, Public Knowledge). *But see* Patukonis Class 8 Reply at 2 (stating that downloadable content or expansion packs “are most often not required to continue to access the original content of the initial purchase”).

¹⁶⁰⁰ Public Knowledge Class 8 Initial at 5–6.

¹⁶⁰¹ *Id.* at 8–9; Tr. at 82:16–90:01 (Apr. 13, 2018) (Rose, Public Knowledge) (presenting examples of games that blur the distinction between single player and multiplayer games).

¹⁶⁰² Public Knowledge Class 8 Initial at 8–9.

games, defining complete games as “video games that can be played by users without accessing or reproducing copyrightable content stored or previously stored on an external computer server.”¹⁶⁰³ The current petition and subsequent discussion are directed at expanding the definition of “complete games.” To the extent that Public Knowledge’s concerns are directed at expanding the “continued play” arm of the exemption, these concerns were not raised at the petition stage and thus are not before the Office in this proceeding. The Acting Register notes, however, that the current exemption does not foreclose all multiplayer functionality.¹⁶⁰⁴

As in the last rulemaking, all participants praise video games as an important form of cultural expression. But ESA and Joint Creators II believe that no expansion is needed because existing preservation efforts by video game companies and preservation institutions, coupled with the current video game preservation exemption, are sufficient to address any legitimate preservation needs.¹⁶⁰⁵ ESA explains that “its member companies are committed to, and actively support, serious professional efforts to preserve video games and recognize the industry’s creative contributions under circumstances that do not jeopardize game companies’ rights under copyright law.”¹⁶⁰⁶ As detailed below, ESA contests that proponents’ activities would be noninfringing, or that they have otherwise met the statutory requirements for an exemption. Opponents further suggest that the record indicates that the purpose of the expanded exemption is not truly for preservation uses, but rather to enable recreational play of these games, and that therefore no expansion is warranted.¹⁶⁰⁷

2. Discussion

The Acting Register notes that the proponents again make impassioned arguments related to the cultural, historical, and educational significance of video games. Several commenters detailed how video games have been personally significant to their lives.¹⁶⁰⁸ The Acting Register and all participants agree that video games are culturally significant

¹⁶⁰³ 37 C.F.R. § 201.40(b)(8)(iii)(A) (2016).

¹⁶⁰⁴ See 2015 Recommendation at 345.

¹⁶⁰⁵ ESA Class 8 Opp’n at 7, 21; Joint Creators II Class 8 Opp’n at 6–9.

¹⁶⁰⁶ ESA Class 8 Opp’n at 2.

¹⁶⁰⁷ *Id.* at 22; Joint Creators II Class 8 Opp’n at 4.

¹⁶⁰⁸ See, e.g., Anonymous Class 8 Initial at 2 (describing playing an online character until it was nearly “old enough to vote”); Borman Class 8 Initial at 2; Dobbs Class 8 Initial at 2 (“I would love to one day take my children on a digital tour of the games of my childhood.”); Giddens Class 8 Initial at 2 (“[Gamers] can and do develop a strong attachment to the characters and items that they’ve collected over the years as well as the communities that form.”); Kwiatkowski Class 8 Reply at 2; Reynolds Class 8 Reply at 2 (noting that gamers have met spouses on shutdown games and that shutdowns can feel “like losing a family member”).

and worth preserving. It is heartening that some preservation work is already being performed at the Video Game History Foundation, the Museum of Modern Art, the International Center for the History of Electronic Games at the Strong Museum of Play, Stanford University, and the Universities of Texas and Michigan, as well as by both opponents and proponents in this class.¹⁶⁰⁹ While these preservation efforts may be aided by the existing exemption, it does not cover all games, leaving gaps in preservation efforts.¹⁶¹⁰ For example, as an Xbox co-creator noted, some MMOs have unique cultural importance because “they’re the first virtual worlds. They’re the first times that human beings got together and met in a virtual space.”¹⁶¹¹ At the same time, proponents must satisfy the statutory elements for an exemption, and any exemption must adhere to the statutory limits delineated by Congress.

Proponents rely on fair use as the basis for the proposed exemption. While proponents also suggest that the preservation activities are noninfringing under section 108, in context it is clear that proponents are arguing that section 108 serves as a useful supplement to a section 107 analysis.

a. Works Protected by Copyright

There is no dispute that video games, as computer programs or audiovisual works, are works protected by copyright.¹⁶¹² While this class encompasses functional aspects of the game software, the proposed expansion also concerns preservation of highly expressive and creative game elements previously stored on external servers.¹⁶¹³

b. Asserted Noninfringing Uses

Proponents describe two methods of preserving video games stored, in part, on remote servers:

There’s really two choices. One is that you have access to the original source code. So, in the case of MADE, they’re trying to bring back an

¹⁶⁰⁹ MADE Class 8 Initial at 4 & App. A-6-9; ESA Class 8 Opp’n at 7; Tr. at 09:20-10:05 (Apr. 23, 2018) (Handy, MADE).

¹⁶¹⁰ In addition, as noted in Class 9, the Acting Register is also recommending an expanded exemption for games that do not require a server connection, such as Commodore 64 games.

¹⁶¹¹ Tr. at 65:05-12 (Apr. 13, 2018) (Fries); *see id.* at 63:18-64:20.

¹⁶¹² *See* U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 618.8(A)(2) (3d ed. 2018).

¹⁶¹³ *Cf.* 2015 Recommendation at 326 (suggestion by prior proponents EFF/Albert that previous exemption request, excluding the need to access copyrightable content on external servers, would involve “changing only functional aspects of the software, not expressive elements such as graphics or audio.”) (citation omitted).

MMO and an early online game, and fortunately, they had access to both the source code and to the hardware itself, the custom hardware that it ran on. . . . The second option is to recreate the server software. That has been done illegally by people around some very popular games, for example, people have built [an] illegal version of the server-side code for World of Warcraft.¹⁶¹⁴

These activities would implicate the reproduction right, the right to prepare derivative works, or both. MADE asserts these preservation activities conform to the contours of section 108 and are fair uses.

In many respects, the current class represents a sequel to the 2015 video game discussion, where the Register noted that participants agreed “that preservation, research and study sometimes are permitted as fair uses,” but noted that “[t]he consensus evaporates . . . when considering the types of activities and actors properly considered as engaging in ‘preservation.’”¹⁶¹⁵ The two methods for obtaining the copyrightable content stored on remote servers pose related but distinct questions with respect to infringement; participants’ comments are discussed in full before the Acting Register sets out her analysis.

Under the first fair use factor, the purpose and character of the use, MADE argues that “the preservation of abandoned online video games serves critical, educational, and scholarly purposes consistent with the examples provided in [the preamble of] § 107,” including criticism, comment, news reporting, teaching, scholarship, and research.¹⁶¹⁶ It argues that uses that provide substantial public benefits, including preservation of video games, are favored under this factor.¹⁶¹⁷ Other commenters concur, with Public Knowledge stating that online multiplayer games have been used by a wide variety of academic researchers, including economists, epidemiologists, terrorism researchers, neurobiologists, social scientists, psychologists, and others.¹⁶¹⁸ Randy Farmer notes that the MMO Habitat, a game he co-created, is historically significant and worthy of study because its code was a predecessor to the JavaScript Object Notation messaging standard.¹⁶¹⁹

MADE also argues that preserving abandoned games is a highly transformative use, because preservation “imbues preserved games with new meaning and message (by

¹⁶¹⁴ Tr. at 71:17–72:10 (Apr. 13, 2018) (Fries).

¹⁶¹⁵ 2015 Recommendation at 340 (citation omitted).

¹⁶¹⁶ MADE Class 8 Initial at 17.

¹⁶¹⁷ *Id.* at 19 (citing *Sega*, 977 F.2d at 1523).

¹⁶¹⁸ Public Knowledge Class 8 Initial at 6–7; *see also* Burkett Class 8 Initial at 2.

¹⁶¹⁹ Farmer Class 8 Initial at 2.

turning games into objects for scholarly attention) and . . . adds new expression (in the form of new software code).”¹⁶²⁰ MADE cites *Perfect 10, Inc. v. Amazon.com, Inc.*, and *Authors Guild, Inc. v. HathiTrust* for the proposition that “even complete recreations of a copyrighted work for a different purpose can be transformative.”¹⁶²¹

With regard to the second fair use factor, the nature of the copyrighted work, MADE acknowledges that video games contain both expressive and functional elements, but argues that when it is necessary to copy expressive elements to perform the functional elements, this factor favors fair use.¹⁶²² For the third fair use factor, MADE acknowledges that the copying at issue is “substantial” and may require copying and modifying “all [] of a game’s architecture as well as some expressive elements,” but contends such copying is not “‘excessive’ because it is necessary to the transformative and socially beneficial purpose of preserving the work.”¹⁶²³

On the fourth factor, MADE contends that because the works at issue are no longer sold through normal channels, there is “little-to-no market” for the video games it seeks to preserve.¹⁶²⁴ MADE also notes that the contours of the proposed exemption provide that the preservation activities cannot be for “direct or indirect commercial advantage” and that such games cannot be distributed outside of the eligible preservation institution.¹⁶²⁵

Underlying many of opponents’ objections to proponents’ fair use arguments is a belief that proponents’ intended use of the video games is not a true preservation use. Instead, opponents contend that proponents wish to engage in recreational play that could function as a market substitute.¹⁶²⁶ ESA believes that because the uses at issue are non-transformative and commercial, the first fair use factor weighs against fair use.¹⁶²⁷

ESA maintains that MADE essentially is a commercial actor rather than a nonprofit museum, because it charges an admission fee, promotes the fact that visitors can play video games at its museum, and engages in the public performance and display of

¹⁶²⁰ MADE Class 8 Reply at 20.

¹⁶²¹ MADE Class 8 Reply at 20 (citing *Perfect 10*, 508 F.3d at 1165–66, and *HathiTrust*, 755 F.3d at 97).

¹⁶²² MADE Class 8 Initial at 20.

¹⁶²³ *Id.* at 21 (citing 2015 Recommendation at 341); Tr. at 27:26 (Apr. 23, 2018) (Handy, MADE) (noting that the amount of a video game that stored on remote servers “varies from game to game”).

¹⁶²⁴ MADE Class 8 Initial at 22.

¹⁶²⁵ *Id.* at 23 (referencing 37 C.F.R. § 201.40(b)(8)(i)(B) (2016)).

¹⁶²⁶ Joint Creators II Class 8 Opp’n at 12.

¹⁶²⁷ ESA Class 8 Opp’n at 32.

games rather than only reproduction and modification for preservation purposes.¹⁶²⁸ ESA observes that nonprofit organizations are not immune from making commercial uses of works, especially when they engage in “repeated and exploitative copying of copyrighted works.”¹⁶²⁹ Further, ESA points out that direct economic benefit is not required to demonstrate commercial use.¹⁶³⁰

ESA also argues that the uses at issue are non-transformative, as proponents’ goal is “to emerge with a copy that faithfully reproduces expressive elements of the original game experience.”¹⁶³¹ According to ESA, such an act “introduces no new expression, meaning or message,” but “simply reproduces a work to enable the use for which it was originally created.”¹⁶³² In addition, Joint Creators II suggest that to recreate a server, preservationists would require “unauthorized hacking into computer servers” before they are decommissioned, which would “likely not only violate the Copyright Act—it would also likely violate the Computer Fraud and Abuse Act.”¹⁶³³

Regarding the second factor specifically, ESA asserts that a finding that the works at issue are highly creative might not “counsel against fair use *if* proponents proposed copying only functional elements of video game software.”¹⁶³⁴ But ESA believes that proponents wish to copy or recreate “game server software that controls expressive aspects of video games, as well as server-based game elements” to engage in public performance and display, not strictly preservation, of those works.¹⁶³⁵ In addition, ESA asserts that the server copies at issue here are unpublished, which it argues weighs strongly against a finding of fair use.¹⁶³⁶ As to the third factor, ESA contends that the intended use here is both significant and substantial. In its view, the anticipated uses involve “durable copying and persistent public performance and display of large and important parts of video games,” which ESA argues is significantly different than the small, but necessary, modifications to the copies of local games considered in the 2015 rulemaking.¹⁶³⁷

¹⁶²⁸ *Id.* at 26–27, 33; *see also* Tr. at 52:07–53:04 (Apr. 23, 2018) (Williams, Joint Creators II).

¹⁶²⁹ ESA Class 8 Opp’n at 32 (quoting *Wall Data*, 447 F.3d at 779).

¹⁶³⁰ *Id.* (citing *Napster*, 239 F.3d at 1015).

¹⁶³¹ *Id.* at 32–33.

¹⁶³² *Id.* at 33.

¹⁶³³ Joint Creators II Class 8 Opp’n at 10 (citing 18 U.S.C. § 1030).

¹⁶³⁴ ESA Class 8 Opp’n at 34.

¹⁶³⁵ *Id.*

¹⁶³⁶ *Id.* at 36 (citing *Harper & Row*, 471 U.S. at 549–55).

¹⁶³⁷ *Id.* at 35.

Finally, as to the fourth factor, ESA argues that the video game software now at issue is distinguishable from that in the 2015 rulemaking, which should result in a different analysis of market effect. First, ESA notes again that the server copy proponents wish to acquire is an unpublished work that has never been distributed to the public.¹⁶³⁸ Opponents also explain that the games covered under the existing and proposed exemption are not truly “abandoned” as proponents suggest. ESA asserts that abandonment is a term of art, requiring a demonstrated intent “to surrender rights in the work”; here, by contrast, the periodic discontinuation of certain games is often a strategic choice to drive interest in a sequel or other derivative work.¹⁶³⁹ It notes that video game publishers frequently “revive” their older works for new platforms or due to the increased interest in “retro gaming.”¹⁶⁴⁰

As noted, the activities described by proponents involve two distinct uses: (1) those that would require complete, or at least significant, recreation of a game’s original server software, and (2) the preservation of a game where a copy of the decommissioned server software has been lawfully acquired into the collections of an eligible institution.¹⁶⁴¹ Because these activities require different fair use analyses, the Acting Register addresses them separately below. The Acting Register also separately addresses the question of “affiliate archivists” in any exemption.

i. Recreation of Server Software

The Acting Register concludes that the record is insufficient to support a finding that the recreation of video game server software as described by proponents is likely to be a fair use. To start, the 2015 rulemaking recognized that preservation for scholarship and research is a favored use under the law.¹⁶⁴² But in doing so, the Register concluded that “section 108 provides useful and important guidance as to Congress’s intent regarding the nature and scope of legitimate preservation activities, and hence the types of uses that are most likely to qualify as fair in this area.”¹⁶⁴³ Indeed, proponents argue that the expanded exemption would be “within the scope of legitimate preservation activities

¹⁶³⁸ *Id.* at 36 (citing *Harper & Row*, 471 U.S. at 549–55).

¹⁶³⁹ *Id.*

¹⁶⁴⁰ *Id.*; Joint Creators II Class 8 Opp’n at 12.

¹⁶⁴¹ See Tr. at 81:11–16 (Apr. 23, 2018) (Handy, MADE) (“if [original artists] don’t have the actual source codes or we don’t have access to the source codes, we will work with them to re-create the original server”); see also MADE Class 8 Initial at App. A-1 (Preservationists of video games ask themselves “do we rewrite [the game server] from scratch, or try to get the old server running?”).

¹⁶⁴² See, e.g., 2015 Recommendation at 343 (citing 17 U.S.C. § 107).

¹⁶⁴³ *Id.* at 342; see also *id.* at 341 (rejecting proposition that “anyone who seeks to continue playing a video game should be treated as a *de facto* preservationist”).

contemplated by § 108.”¹⁶⁴⁴ Yet the exception for library preservation under section 108 is limited to works “currently in the collections” of a preservation institution and would not extend to works that are reconstructed from different sources.¹⁶⁴⁵ A user’s status as a library, archives, or museum alone does not compel the conclusion that its activities necessarily qualify as fair use, for “we must consider not only the nature of the user, but the use itself.”¹⁶⁴⁶

Here, a number of scenarios described by proponents do not involve preserving server software that is already in an institution’s collections.¹⁶⁴⁷ Instead, proponents indicate that some uses would involve substantially rewriting the server software to approximate how the original would have functioned.¹⁶⁴⁸ Proponents thus describe something more akin to *reconstructing* the remote server, rather than *preserving* that work.¹⁶⁴⁹

The departure of this aspect of the proposal from congressionally-established contours of preservation has implications for the fair use analysis.¹⁶⁵⁰ In this scenario, the lack of a

¹⁶⁴⁴ MADE Class 8 Initial at 13–14.

¹⁶⁴⁵ 17 U.S.C. § 108(b)(1).

¹⁶⁴⁶ *Cambridge Univ. Press*, 769 F.3d at 1264–65; *accord Am. Geophysical Union*, 60 F.3d at 921–22 (“[A] court’s focus should be on the *use* of the copyrighted material and not simply on the *user*”); *see also Campbell*, 510 U.S. at 584 (“[T]he mere fact that a use is educational and not for profit does not insulate it from a finding of infringement, any more than the commercial character of a use bars a finding of fairness.”).

¹⁶⁴⁷ *See* Tr. at 71:17–72:10 (Apr. 13, 2018) (Fries).

¹⁶⁴⁸ *See* Tr. at 81:11–16 (Apr. 23, 2018) (Handy, MADE); Tr. at 72:06–72:21 (Apr. 13, 2018) (Fries).

¹⁶⁴⁹ *See, e.g.,* Karen Kroslowitz, *Preservation, Conservation, Restoration: What’s the Difference?*, COMPUT. HISTORY MUSEUM (Oct. 26, 2012), <http://www.computerhistory.org/atcm/preservation-conservation-restoration-whats-the-difference/> (“Preservation—or more accurately preventive conservation—is the practice of maintaining artifacts by providing a stable storage or display environment in order to minimize further damage or deterioration. . . . Restoration equals permanent change. Cleaning and replacing significant parts, whether original to the object’s manufacturer or not, alter the historical integrity of an artifact. Once changed an object’s provenance has also been altered and it is no longer a true document of its place in history. That’s a big deal in museums, which are considered by the majority of Americans to be the most trustworthy source of information about the past.”); MADE Class 8 Initial at App. A-6 (statement of Henry Lowood, Curator, Stanford Univ.) (“Access to the original software and to the digital assets (maps, audio files, character animations, etc.) that make up a game or virtual environment is fundamentally important. If a game server is shut down without provisions being made for access to the original software, preservation is impossible.”).

¹⁶⁵⁰ By analogy, in the related context of patent law, users may replace an unprotected element, but not engage in activity significant enough to constitute “reconstruction” of the patented article. *See Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 346 (1961) (replacement of

copy of the work distinguishes proponents' situation from much of the cases and reasoning they rely upon in claiming that their activities serve a favored purpose. For example, in *HathiTrust*, the preserved books at issue were not reconstructed, but were reproduced in digital copies containing "the full text of the work, in a machine readable format, as well as the images of each page in the work as they appear in the print version."¹⁶⁵¹ Similarly, much of proponents' analysis of the section 107 factors appears to assume that the preservation activities will require the access to and copying of server-side software,¹⁶⁵² instances that the Acting Register analyzes separately below.

Moreover, the reconstruction of a work implicates copyright owners' exclusive right to prepare derivative works—which is generally not covered by section 108's exceptions for preservation activities.¹⁶⁵³ While such activities may advance preservation interests or be a fair use in particular instances, that determination will vary based on case-specific factors such as the amount and substantiality of the changes made to the original. While proponents presumably seek to faithfully replicate the experience of the original game to the extent possible, the evidence indicates that in at least some circumstances the resulting work is considerably different than the original. MADE states that to preserve video games that rely on remote servers, "an online game's architecture must be modified to work with new operating systems and hardware, making the preserved game substantially different from the original: same game, different code."¹⁶⁵⁴

These uncertainties preclude broad generalizations as to the nature of the activities described by proponents, in the instances where they lack a copy of the source code previously hosted on the decommissioned external server.¹⁶⁵⁵ Accordingly, and without

spent fabric in convertible car top was noninfringing repair because it was not a "true reconstruction of the entity as to in fact make a new article") (internal citations omitted).

¹⁶⁵¹ *HathiTrust*, 755 F.3d at 92 (emphasis omitted).

¹⁶⁵² See MADE Class 8 Initial at 19–22; see also *id.* at App. A-6–8 (statement of Henry Lowood) ("[P]reservation without access to the software, both as data and as an executable program, becomes a meaningless activity.").

¹⁶⁵³ See 17 U.S.C. § 108(a)–(g) (except for the limited circumstances under subsections (h)–(i), section 108 only contemplates the reproduction and distribution rights).

¹⁶⁵⁴ MADE Class 8 Reply at 21–22.

¹⁶⁵⁵ The record in this class generally discusses that content stored on some remote servers can range from small amounts of mostly functional code to larger amounts of code, including highly creative content. See MADE Class 8 Initial at 20; Tr. at 27:26 (Apr. 23, 2018) (Handy, MADE); Tr. at 28:17–22 (Apr. 23, 2018) (Clarendon). In instances where the missing server code is largely functional and of a lesser amount, the proposed uses more likely would be fair, but without a record that includes specific examples of these games, the Acting Register cannot evaluate further.

prejudging the analysis as to any specific online video game, the Acting Register cannot conclude that these activities are likely to qualify as fair uses.

Finally, Public Knowledge’s interest in allowing preservation institutions to recreate server copies of works after the game’s software is updated, and where the updated version remains available, would involve preservation via recreation of copies of the game while it is still available in the market. Proponents’ comments do not adequately address how this difference may alter the infringement analysis, and it is a potentially significant departure from the current exemption, which focuses on discontinued server support for the game, generally.¹⁶⁵⁶ Further, it is unclear that practicing preservationists are currently interested in addressing this category of software.¹⁶⁵⁷ The Acting Register therefore does not find it appropriate to consider amending the current regulatory definition of “ceased to provide access.”

ii. Preservation of Lawfully Acquired Server Software

A different analysis is warranted in cases where an institution is able to legally obtain a complete copy of remote server video game software and seeks to reproduce and modify that copy to preserve it. The Acting Register again finds that section 108 provides “useful and important guidance” as to whether these activities are likely to be fair.¹⁶⁵⁸ The current exemption allows for circumvention of self-contained copies of video games, that is, games that do not require creation of a new server to continue to play the game. Here, preservationists suggest they could lawfully acquire both a server and a local copy of a video game, which would then be “currently in the collections” of eligible institutions under section 108.¹⁶⁵⁹ Although the server and local copies of games may contain core expressive elements of the work, any necessary modifications to the lawfully acquired games would be for largely functional purposes, such as modifying software architecture or protocols to ensure that game servers and clients can communicate with each other in a modern environment.¹⁶⁶⁰ In this instance, the reproduction and modification of functional aspects of video game software to enable

¹⁶⁵⁶ See 37 C.F.R. § 201.40(b)(8)(iii)(B) (2016). As noted in the 2015 Recommendation, this definition was originally proposed by proponents on behalf of preservationist institutions. See 2015 Recommendation at 350.

¹⁶⁵⁷ See, e.g., Tr. at 36:05–10 (Apr. 23, 2018) (Handy, MADE) (“So this exemption is not for World of Warcraft. And I’m going to use World of Warcraft as an example. World of Warcraft has expansions. . . . They distributed [versions of the game] on a disk on a client. So that data is out there already.”).

¹⁶⁵⁸ See 2015 Recommendation at 342.

¹⁶⁵⁹ 17 U.S.C. § 108(b)(1).

¹⁶⁶⁰ See MADE Class 8 Initial at 20; Tr. at 71:22–72:07 (Apr. 23, 2018) (Walker, Samuelson Law, Tech. & Pub. Policy Clinic); Tr. at 35:24–36:03 (Apr. 23, 2018) (Handy, MADE).

noncommercial preservation and research would seem likely to be a fair use, following a similar analysis as that which established the 2015 exemption.¹⁶⁶¹

Indeed, ESA itself implies that in a circumstance where the server was handed over by the copyright owner, an exemption would not even be necessary.¹⁶⁶² But an exemption may be helpful in just the circumstance that was presented by MADE—where the preservation institution is in legal possession of both the server and local copy of the game, but is still prevented from preserving the game because of an access code. For example, in the Habitat instance, an additional piece of code (obsolete billing code) acted as a TPM.¹⁶⁶³ Although the evidence here demonstrates that obtaining a server copy is difficult, it appears games’ server copies can be acquired through donation, salvage, or sale.¹⁶⁶⁴ In light of this, and recognizing the valuable and important goals of preservation institutions, the Acting Register concludes that proponents have sufficiently demonstrated a set of proposed uses that are likely noninfringing when they have lawfully acquired the essential component works that comprise the game.¹⁶⁶⁵

iii. Use of Affiliate Archivists

Next, the Acting Register considers “affiliate archivists,” a proposed class of users engaged in lawful game preservation under the supervision of libraries, archives, or museums.¹⁶⁶⁶ MADE believes that preservation institutions would benefit from an exemption to cover these users, so that they can contribute expertise to preservation

¹⁶⁶¹ See 2015 Recommendation at 341–44 (applying section 108 as guidance to limit class and analyzing fair use factors).

¹⁶⁶² See Tr. at 41:25–42:10 (Apr. 23, 2018) (Englund, ESA).

¹⁶⁶³ See Tr. at 69:16–25 (Apr. 23, 2018) (Walker, Samuelson Law, Tech. & Pub. Policy Clinic).

¹⁶⁶⁴ See MADE Class 8 Initial at App. A-1 (donation); Tr. at 69:05–09 (Apr. 13, 2018) (Fries) (salvage); Tr. at 23:04–12 (Apr. 23, 2018) (Handy, MADE) (source code donated from garages). While ESA alleges game server software to be an unpublished work, ESA Class 8 Opp’n at 36, the proposed exemption would apply only in situations where the server software is lawfully acquired by an eligible institution. Section 108 authorizes preservation of unpublished works in an eligible institution’s collections, *see* 17 U.S.C. § 108(b), suggesting that such activity is likely to fall within the parameters of fair use. Moreover, the Copyright Act expressly provides that “[t]he fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the . . . factors.” 17 U.S.C. § 107.

¹⁶⁶⁵ See Tr. at 69:05–09 (Apr. 13, 2018) (Fries) (“Most of what exists today either is something that employees were working on and took home to their house or stuff that people rescued out of dumpsters when the companies went out of business.”). The Acting Register notes that the current exemption applies to circumvention by qualifying users, including gamers or preservationists, who lawfully acquire copies of video games, and does not apply to circumvention performed by third parties.

¹⁶⁶⁶ MADE Class 8 Initial at 4.

efforts from remote locations without facing any potential liability risk.¹⁶⁶⁷ MADE notes that, based on its experience in preserving Habitat, preservation of a single work in this class could include “thousands of person-hours,” encompassing both non-expert volunteers working on low-level preservation tasks, as well as software engineers with “extremely specialized knowledge.”¹⁶⁶⁸ While the proposed language is arguably ambiguous concerning whether the affiliates themselves would be required to engage in circumvention, proponents subsequently confirmed that this was intended by their language.¹⁶⁶⁹

Opponents vehemently object to the use of affiliate archivists, contending that there is a heightened risk of market harm if access to video games in the collection of the eligible organization is no longer limited to the premises of the organization.¹⁶⁷⁰ ESA contends that proponents have not explained how preservation institutions “could effectively supervise a legion of affiliates,” suggesting that “[i]t is not hard to imagine an organization opening up ‘affiliation’ to anyone who volunteers through completion of an online form, without any meaningful verification of the affiliates’ identities or intentions.”¹⁶⁷¹ As ESA puts it, “[i]n effect, the request would dissolve any meaningful distinction between preservationists and recreational gamers, and invite substantial mischief.”¹⁶⁷² They further note that an expanded user class would allow affiliates to engage in console jailbreaking in their homes.¹⁶⁷³ In Joint Creators II’s view, such console jailbreaking “would put at risk other content accessible via the consoles, such as motion pictures and recorded music.”¹⁶⁷⁴

MADE replies that affiliate archivists would be “limited by the policies of their institutional sponsors,” as well as the restrictions found in the exemption.¹⁶⁷⁵ When pressed to describe how affiliate archivists would be supervised, MADE suggested it could use Github to limit access to and downloading of the server’s code.¹⁶⁷⁶ MADE also

¹⁶⁶⁷ Tr. at 84:04–07 (Apr. 23, 2018) (Handy, MADE).

¹⁶⁶⁸ MADE Class 8 Initial at App. A-1; Tr. at 96:14–23, 127:01–15 (Apr. 23, 2018) (Handy, MADE) (discussing restoration of Habitat).

¹⁶⁶⁹ Tr. at 85:18–22 (Apr. 23, 2018) (Handy, MADE).

¹⁶⁷⁰ ESA Class 8 Opp’n at 36–37.

¹⁶⁷¹ *Id.* at 9, 29.

¹⁶⁷² *Id.* at 4.

¹⁶⁷³ *Id.* Opp’n at 36–37.

¹⁶⁷⁴ Joint Creators II Class 8 Opp’n at 14.

¹⁶⁷⁵ MADE Class 8 Reply at 7, 16.

¹⁶⁷⁶ Tr. at 89:12–21 (Apr. 23, 2018) (Handy, MADE). Github is a platform for hosting software code designed around Git, a system to “track software written by a large, disparate group, rather than by a managed team at a software company. It allows multiple developers to work on the

suggested it could ask how other museums handle volunteer supervision, but added that software preservation is “a very messy field.”¹⁶⁷⁷ Further, MADE acknowledges that different affiliate archivists would need to share circumvention technology among themselves to restore access to the game.¹⁶⁷⁸

As addressed in prior rulemakings, “circumvention of console restrictions—even when initially undertaken for salutary purposes—is inextricably linked to and tends to foster piracy,” and prior Registers have concluded that modification of console code by individual consumers is unlikely to be a fair use.¹⁶⁷⁹ The logic seems to apply equally to this request, inasmuch as it allows individuals to circumvent consoles in their own homes. As a representative from MADE pointed out, “all the [preservation] work that [currently] is being done in this space is being done by fan groups in [a] completely illegal space.”¹⁶⁸⁰

Further, the proposed class’s loose contemplation of affiliate archivists is not consistent with principles surrounding “trained volunteers” in the Copyright Office’s Section 108 Discussion Document. This report contemplates volunteers “who provide professional services normally associated with a library, archives, or museum,” including “awareness of issues and knowledge regarding institutional practices” to guide in the reproduction and distribution of copyrighted material.¹⁶⁸¹ Further, while the Section 108 Study Group proposed letting outside contractors perform certain section 108 activities on behalf of a qualifying institution, that proposal contained important conditions, including allowing only reproduction activities, prohibiting retention of any materials outside of the premises of the preservation institution unless essential to an outsourced service, and requiring a written agreement between the preservation institution and contractor to

same code in different places, and to integrate their changes later.” *The Economist Explains: What is Github?*, THE ECONOMIST (June 18, 2018), <https://www.economist.com/the-economist-explains/2018/06/18/what-is-github>.

¹⁶⁷⁷ Tr. at 123:13–18 (Apr. 23, 2018) (Handy, MADE).

¹⁶⁷⁸ Tr. at 115: 08–11 (Apr. 23, 2018) (Handy, MADE); *see also* Tr. at 127:07–09 (Apr. 23, 2018) (Handy, MADE) (noting that only approximately a dozen people have the particular knowledge to work on any single video game preservation project). *But see* Tr. at 115:12–19 (Apr. 23, 2018) (Deamer, Samuelson Law, Tech. & Pub. Policy Clinic) (suggesting that the trafficking prohibitions may not apply to volunteers working for the same organization).

¹⁶⁷⁹ 2012 Recommendation at 43–44; *see also* 2015 Recommendation at 339–40.

¹⁶⁸⁰ Tr. at 10:11–13 (Apr. 23, 2018) (Handy, MADE); *see also* Tr. at 105:04–26, 105:07–11 (Apr. 23, 2018) (Williams, Joint Creators II); Kyle Orland, *Blizzard Shuts Down “Legacy” WoW Fan Server Hours After it Goes Up*, ARS TECHNICA (July 24, 2017), <https://arstechnica.com/gaming/2017/07/blizzard-shuts-down-legacy-wow-fan-server-hours-after-it-goes-up/>.

¹⁶⁸¹ Section 108 Discussion Document at 19–20.

preserve infringement lawsuits for contractors acting outside of section 108.¹⁶⁸² Similarly, the Copyright Act's exceptions for educational institutions engaged in distance learning activities require such institutions to "institute[] policies regarding copyright" and "provide[] informational materials to faculty, students, and relevant staff members that accurately describe, and promote compliance with, the laws of the United States relating to copyright."¹⁶⁸³ Here, by contrast, both the proposed language and the proponent institutions' practices seem to lack any such protective guidelines.¹⁶⁸⁴

Considering all of the above, the Acting Register cannot agree that the use of affiliate archivists, as contemplated by MADE, is likely to constitute a fair use.

To be clear, the existing exemption does not restrict volunteers from engaging in lawful preservation efforts that do not involve circumvention of access controls, including potentially remote activity to the extent it is sufficiently supervised to constitute "preservation . . . by an eligible" sponsoring institution. On the contrary, the 2015 Recommendation noted that "interested individuals may be able to contribute to valuable preservation efforts by lending their talents and expertise to qualified institutions."¹⁶⁸⁵ Participants agree that video game preservation is time consuming—in the case of Habitat, requiring "countless hours provided by volunteers."¹⁶⁸⁶ But taking Habitat as an example, it also appears that volunteers can be meaningfully engaged in preservation activities without engaging in circumvention off-premises. Because the record indicates a patchiness regarding institutional policies for supervising preservation activities by volunteers or other third parties, the Acting Register

¹⁶⁸² SECTION 108 STUDY GROUP, THE SECTION 108 STUDY GROUP REPORT 41 (Mar. 2008), <http://www.section108.gov/docs/Sec108StudyGroupReport.pdf>; *see also* Section 108 Discussion Document at 49–50.

¹⁶⁸³ 17 U.S.C. § 110(2)(D). This provision also requires such institutions to "provide[] notice to students that materials used in connection with the course may be subject to copyright protection." *Id.*

¹⁶⁸⁴ *See* MADE Class 8 Reply at 17 ("[W]e disagree with Opponents['] mischaracterization of [the Section 108 Study Group] report as establishing strict guidelines for third-parties instead of providing general recommendations. Extensive, *ex ante* regulation is not recommended by the § 108 Study Group and is unnecessary here."). Currently, the MADE's publicly available volunteer sign-up process appears to consist of soliciting contact information, a statement of skills, and the question "have you ever been convicted of a felony?" *See* MADE, *Get Involved*, <https://www.themade.org/get-involved/> (last visited Sept. 27, 2018), (click on "Fill out our volunteer sign[-]up sheet [here](#)"). Indeed, many of the individual commenters appear to understand this class as one directed at furthering remote continued play of the game, rather than typical preservation efforts. *See, e.g.*, Consumers Union Class 8 Initial at 2–3; Patukonis Class 8 Reply at 2–3.

¹⁶⁸⁵ 2015 Recommendation at 351.

¹⁶⁸⁶ MADE Class 8 Initial at 27 & App. A-1.

encourages eligible institutions interested in growing individual participation to establish more robust training and guidelines to facilitate these efforts. The Section 108 Discussion Document and Study Group report may provide helpful insight in this regard.

c. Causation

ESA asserts that the cause of any adverse effect suffered by proponents is not due to “a problem caused by TPMs, as opposed to the discontinuation of a video game service.”¹⁶⁸⁷ It argues that the server software and other remote content are “not merely a TPM controlling access to the local game software,” but are a part of an online service where there is “no permanent right of access.”¹⁶⁸⁸ ESA analogizes the remote servers to a streaming service that has ceased existing—the content would still be missing even if the ability to receive it were restored.¹⁶⁸⁹ ESA also argues that an exemption would add little to preservation efforts, because “as illustrated by the proponents’ restoration of the video game *Habitat*, what they would like to accomplish is impracticable (or at least would be extraordinarily difficult) without the cooperation of video game companies.”¹⁶⁹⁰

In response, MADE states that “game servers and protocols are often protected by TPMs, or may themselves function as TPMs.”¹⁶⁹¹ It contends without circumvention, the video games in this class simply could not be preserved and that this is enough to show causation.¹⁶⁹²

Setting aside MADE’s contention that the very existence of an external server necessarily serves as a TPM, it seems evident that preservation of an online video game would, at the very least, require circumventing similar authentication checks, specific server protocols, or cryptographic verifications on the local client as considered in the existing exemption for preserving offline games.¹⁶⁹³ With respect to accessing missing server content, however, where this server-side software is unavailable, ESA raises a valid question whether the adverse impact on an eligible institution’s ability to use a copyrightable work is more properly flowing from the game publishers’ decision to withdraw access to the work, rather than the remainder of TPMs on the local software

¹⁶⁸⁷ ESA Class 8 Opp’n at 13–14; *see also* Tr. at 90:02–07 (Apr. 13, 2018) (Rose, Public Knowledge).

¹⁶⁸⁸ *Id.* at 14.

¹⁶⁸⁹ *Id.*

¹⁶⁹⁰ *Id.* at 7.

¹⁶⁹¹ MADE Class 8 Reply at 14–15.

¹⁶⁹² *Id.*

¹⁶⁹³ *See* 2015 Recommendation at 324.

formerly protecting that work.¹⁶⁹⁴ Regardless, as noted above, the Acting Register is unable to conclude that the proposed uses in that scenario are likely to be noninfringing.

d. Asserted Adverse Effects

Proponents contend that preservation efforts aimed at online video games are currently hampered. They assert that there are no alternatives to circumvention, because it is difficult to get permission or a license from copyright owners, as it is challenging to determine who holds the rights to video games, and older copyright owners may no longer exist.¹⁶⁹⁵ Regarding the first statutory factor specifically, MADE notes that, in the 2015 rulemaking, the Register found that an exemption would enhance the availability of copyrighted works via preservation and suggested that a broader exemption would allow for preservation of more works.¹⁶⁹⁶ MADE also suggests that preservation of these works “will likely stimulate new copyrighted works offering commentary and analysis of video games, thus increasing the number of copyrighted works that are available.”¹⁶⁹⁷

ESA suggests that the current preservation efforts are sufficient to prevent games from being lost.¹⁶⁹⁸ ESA also argues that any expanded exemption could “reduce the incentives to invest in the creation of new games and make game consoles a less attractive platform for content delivery.”¹⁶⁹⁹

This factor favors the requested exemption. As the Register found in 2015, “a relatively narrow exemption, drawing upon some of the principles of section 108, would allow libraries, archives and museums to restore and maintain access to video games that might otherwise be lost, thus enhancing the availability of copyrighted works.”¹⁷⁰⁰ Similarly, in light of the laudable partnerships in video game preservation demonstrated between game publishers, preservation institutions, and others, the suggestion that a properly crafted exemption would reduce the incentive to create new games is speculative.

Under the second and third statutory factors—the availability for use of works for nonprofit archival, preservation and educational purposes, and the impact on criticism, comment, news reporting, teaching, scholarship, or research—MADE notes that “[a]t

¹⁶⁹⁴ See Commerce Comm. Report at 37 (“[a]dverse impacts that flow from other sources . . . are outside the scope of the rulemaking”); House Manager’s Report at 6; Section 1201 Report at 117.

¹⁶⁹⁵ MADE Class 8 Initial at 28–29; Tr. at 68:04–19 (Apr. 13, 2018) (Fries).

¹⁶⁹⁶ MADE Class 8 Initial at 30 (citing 2015 Recommendation at 348).

¹⁶⁹⁷ *Id.* (citation and internal quotation marks omitted).

¹⁶⁹⁸ ESA Class 8 Opp’n at 39.

¹⁶⁹⁹ *Id.*

¹⁷⁰⁰ 2015 Recommendation at 348.

present, scholars and educators do not have access to most abandoned online video games.”¹⁷⁰¹ In turn, it argues, preservation will enable future study, including allowing researchers to “‘get inside’ the software,” and “understand the development of the technology.”¹⁷⁰²

ESA suggests that the existing exemption sufficiently “enable[s] preservation and subsequent criticism, comment, teaching, scholarship, or research.”¹⁷⁰³ ESA adds that “online multiplayer gameplay is not necessary for preservation or for subsequent scholarly purposes,” and claims that proponents make no showing that the proposed expansion would increase scholarship on video games.¹⁷⁰⁴

As the Register concluded in 2015, these factors heavily favor proponents’ desire to engage in preservation activities.¹⁷⁰⁵ It is critical that video games be preserved to promote future scholarship of these games. While this request is limited to preservation activities, as opposed to recreational gameplay, scholars may need to access a game and experience how it was originally played to understand its design or construction.¹⁷⁰⁶ While ESA contends that preservation efforts have not yet stimulated new copyrighted works in the form of commentary and analysis of video games, it likely is too early for such scholarly work—or even preservation activities—to be completed.

For the fourth section 1201 factor, MADE reiterates much of its arguments under the fourth fair use factor, including that the market will not be negatively impacted because the proposed exemption “must be explicitly non-commercial.”¹⁷⁰⁷ Further, it states that there is little to no market for abandoned video games and that preservation in fact may help the market for these works by promoting greater public interest in them.¹⁷⁰⁸

Perhaps focusing on the “affiliate archivist” aspect of the class, ESA contends that the proposed exemption would significantly increase the number of individuals eligible to jailbreak consoles, in contravention of the current constraint that such conduct occur in a controlled setting.¹⁷⁰⁹ ESA also repeats an argument presented in the 2015 rulemaking, namely, that an exemption would harm the market for sequels or reissued older

¹⁷⁰¹ MADE Class 8 Initial at 30.

¹⁷⁰² *Id.* at 31, App. at A-8 (statement of Henry Lowood, Curator, Stanford Univ.).

¹⁷⁰³ ESA Class 8 Opp’n at 40.

¹⁷⁰⁴ *Id.* at 39–40.

¹⁷⁰⁵ See 2015 Recommendation at 348.

¹⁷⁰⁶ See *id.*

¹⁷⁰⁷ MADE Class 8 Initial at 31; MADE Class 8 Reply at 29.

¹⁷⁰⁸ *Id.* at 31–32.

¹⁷⁰⁹ ESA Class 8 Opp’n at 40.

games.¹⁷¹⁰ Like MADE, ESA suggests that its concerns under the fourth fair use factor equally apply here.¹⁷¹¹

There is no evidence that the current exemption has harmed the market for video games, including reissued games or sequels, and there is no reason to believe that expanding the exemption to include a subset of online video games for which external server support has been discontinued and where a copy of that server-side software has been lawfully obtained, would change that analysis. In 2015, when drawing a distinction between preservationist uses and recreational play, the Register recognized not only the critical need to preserve video games, but also that the piracy risks were tempered within the confined limits of the preservationist class.¹⁷¹² But ESA raises legitimate concerns regarding an exemption that would allow affiliate archivists to circumvent access controls in an uncontrolled environment, including by jailbreaking consoles. While volunteers may add great value to preservation efforts, as noted above, proponents have not demonstrated that this aspect of the proposal is likely noninfringing, and the Acting Register similarly concludes that it could adversely affect the market for copyrighted works.¹⁷¹³ Otherwise, while publisher-supported preservation efforts are laudable, the evidence in record does not convince the Acting Register that additional video game preservation efforts conducted by qualifying preservation institutions would harm the video game market.

Opponents suggest three additional factors to consider. First, ESA voices a business reputation-related concern that unauthorized third-party game servers run by volunteers would not protect against cheating, abusive conduct, or the privacy of users.¹⁷¹⁴ Second, Joint Creators II argue that copying computer programs on remote servers may involve unauthorized “hacking” in violation of the Computer Fraud and Abuse Act (“CFAA”).¹⁷¹⁵ Finally, ESA states that the proposed expansion “contemplates violation of Section 1201(a)(2)’s anti-trafficking provisions.”¹⁷¹⁶

MADE replies that ESA’s trafficking argument “is predicated on numerous factual mischaracterizations, such as the allegation that the Proposed Exemption will be used

¹⁷¹⁰ *Id.* at 36; *see* 2015 Recommendation at 332.

¹⁷¹¹ ESA Class 8 Opp’n at 40–41.

¹⁷¹² 2015 Recommendation at 344.

¹⁷¹³ *See also id.* at 346–47.

¹⁷¹⁴ ESA Class 8 Opp’n at 9, 37.

¹⁷¹⁵ Joint Creators II Class 8 Opp’n at 10–11; *see* 18 U.S.C. § 1030.

¹⁷¹⁶ ESA Class 8 Opp’n at 9.

for ‘re-establishing online gameplay.’”¹⁷¹⁷ MADE also asserts that the exemption will not lead to any reputation-related harms.¹⁷¹⁸

In the 2015 rulemaking, the Register stated that “[r]einstating multiplayer play may require not only replicating or creating new protocols that communicate with games, but also launching a new centralized server and distributing the new protocols to gamers.”¹⁷¹⁹ The Register concluded that such activity may implicate the anti-trafficking provisions of section 1201(a)(2).¹⁷²⁰ Here, though, aside from the proposed expansion related to affiliate archivists, proponents agree that “preserved game architecture (including protocols) will not be distributed or made available to the public ‘outside the premises’ of an eligible library, archives, or museum.”¹⁷²¹ As such, this request, setting aside the affiliate archivist aspect, does not raise the same distribution concerns. Similarly, Joint Creators II’s concern that the CFAA could be violated is accommodated by the requirement that the works at issue be lawfully acquired.¹⁷²² In any event, the CFAA continues to apply to the extent users’ activities implicate its requirements. Finally, limiting the exemption to on-premises preservation and scholarship would appear to eliminate the bulk of ESA’s business reputation concerns, which again seem based on an assumption that the affiliate archivist concept would in practice act as a fig leaf to enable widespread, unsupervised internet play by its consumers.

In sum, the Acting Register finds that consideration of adverse effects in reference to the statutory factors supports a narrowly crafted amendment to the definition of “complete game” to accommodate instances where a preservation institution has obtained a complete copy of both the client- and server-side software.

3. NTIA Comments

NTIA supports the adoption of an expanded exemption, but one narrower than requested by proponents. NTIA believes that the record supports an expanded exemption for some preservation uses, but agrees with the Office that there should be no exemption involving reproduction of expressive content stored on a remote server.

NTIA notes both the importance of preservation as well as the legal and logistical challenges in preserving server-dependent video games. It believes that “in light of

¹⁷¹⁷ MADE Class 8 Reply at 30 (quoting ESA Class 8 Opp’n at 41).

¹⁷¹⁸ *Id.* at 26.

¹⁷¹⁹ 2015 Recommendation at 346.

¹⁷²⁰ *Id.*

¹⁷²¹ MADE Class 8 Initial at 33.

¹⁷²² See 18 U.S.C. § 1030(a)(2) (prohibiting intentionally accessing a computer without authorization or exceeding authorized access).

these difficult issues,” any expansion must be tailored to “enable preservation of more video games without suggesting applicability in situations where the activity is more likely to constitute copyright infringement—such as if the game can only be reproduced using expressive content stored on a server.”¹⁷²³ NTIA proposes an expansion to allow preservation “where the user uses the server component—while still not providing any substantial expressive content—for administrative tasks beyond authentication, including command and control functions such as tracking player progress, facilitating communications between players, or storing high scores.”¹⁷²⁴ To accommodate these uses, it proposes regulatory language that would apply in situations where “all or nearly all of the audiovisual content and gameplay mechanics reside on the player or institution’s lawfully acquired local copy of the game.”¹⁷²⁵ The Acting Register has not followed this approach, however, as NTIA does not define “gameplay mechanics” or provide a means to determine what constitutes “nearly all” of a game’s audiovisual content.

Like the Acting Register, NTIA does not support adding an “affiliate archivist” user class, believing that volunteers may be able to engage in preservation-related circumvention activities under the current exemption.¹⁷²⁶ NTIA concludes that adding such a provision risks “introducing confusing language or suggesting that any such preservationists may not need to be answerable to the institutions for which they are volunteering.”¹⁷²⁷

4. Conclusion and Recommendation

For the reasons described above, the Acting Register recommends a narrow expansion of the existing exemption for video games where server support has ended. Based on the record presented, the Acting Register concludes that where a preservation institution has lawfully acquired both a local and a server copy of a video game, the preservation activities proposed by proponents are likely to be noninfringing and the adverse effect is necessarily caused by the prohibition on circumvention. As discussed above, based on the descriptions in this rulemaking, the Acting Register is not recommending an exemption to allow for instances where the preservation institution lacks access to the server software, or to allow affiliate archivists to engage in circumvention off-premises. On this record, the Acting Register cannot conclude that those activities are likely to be noninfringing.

¹⁷²³ NTIA Letter at 64.

¹⁷²⁴ *Id.* at 63.

¹⁷²⁵ *Id.* at 64.

¹⁷²⁶ *Id.*

¹⁷²⁷ *Id.*

The Acting Register is recommending an exemption for “server-dependent games,” defined as video games that can be played by users who lawfully possess both a copy of a game intended for a personal computer or video game console and a corresponding copy of the game’s code that is stored or was previously stored on an external computer server. The Acting Register continues to recommend an exemption for “complete games,” but will revise the exemption language to reflect that the exemption for “complete games” applies to both gamers and preservation uses, but the exemption for “server dependent games” applies only to preservation uses.

In addition, for the reasons explained above in the discussion of Proposed Class 9, the Acting Register recommends adding a paragraph to the exemption in this class to accommodate preservation of non-server-based video games that are no longer commercially available.¹⁷²⁸ These are the games encompassed by the exemption in proposed Class 9 for preservation of computer programs more generally. The Acting Register recommends including this new language here so that all provisions pertaining to video games are included in a single exemption. The recommended exemption includes this new provision as a new paragraph (iii) and redesignates the current paragraph (iii) as paragraph (iv).

Accordingly, the Acting Register recommends that the Librarian designate the following class:

(i) Video games in the form of computer programs embodied in physical or downloaded formats that have been lawfully acquired as complete games, when the copyright owner or its authorized representative has ceased to provide access to an external computer server necessary to facilitate an authentication process to enable gameplay, solely for the purpose of:

**(A) Permitting access to the video game to allow copying and modification of the computer program to restore access to the game for personal, local gameplay on a personal computer or video game console;
or**

¹⁷²⁸ The Acting Register notes that the Class 8 video game preservation exemption does not include the additional eligibility criteria contained in the Class 9 exemption. Class 9 parties agreed to include these criteria which were partially drawn from the Section 108 Discussion Document, published after the last proceeding. Although preservation institutions may meet these criteria, because the streamlined renewal procedure did not surface this issue for public comment with respect to video game preservation, the Acting Register is not presently recommending amending the video game preservation exemption to incorporate those criteria. Parties are encouraged to consider whether these eligibility criteria are appropriate for the video game preservation exemption in the next section 1201 rulemaking proceeding.

(B) Permitting access to the video game to allow copying and modification of the computer program to restore access to the game on a personal computer or video game console when necessary to allow preservation of the game in a playable form by an eligible library, archives, or museum, where such activities are carried out without any purpose of direct or indirect commercial advantage and the video game is not distributed or made available outside of the physical premises of the eligible library, archives, or museum.

(ii) Video games in the form of computer programs embodied in physical or downloaded formats that have been lawfully acquired as complete games, that do not require access to an external computer server for gameplay, and that are no longer reasonably available in the commercial marketplace, solely for the purpose of preservation of the game in a playable form by an eligible library, archives, or museum, where such activities are carried out without any purpose of direct or indirect commercial advantage and the video game is not distributed or made available outside of the physical premises of the eligible library, archives, or museum.

(iii) Computer programs used to operate video game consoles solely to the extent necessary for an eligible library, archives, or museum to engage in the preservation activities described in paragraph (b)(12)(i)(B) or (b)(12)(ii) of this section.

(iv) For purposes of this paragraph (b)(12), the following definitions shall apply:

(A) For purposes of paragraph (b)(12)(i)(A) and (b)(12)(ii) of this section, “complete games” means video games that can be played by users without accessing or reproducing copyrightable content stored or previously stored on an external computer server.

(B) For purposes of paragraph (b)(12)(i)(B) of this section, “complete games” means video games that meet the definition in paragraph (b)(12)(iv)(A) of this section, or that consist of both a copy of a game intended for a personal computer or video game console and a copy of the game’s code that was stored or previously stored on an external computer server.

(C) “Ceased to provide access” means that the copyright owner or its authorized representative has either issued an affirmative statement indicating that external server support for the video game has ended and such support is in fact no longer available or, alternatively, server

support has been discontinued for a period of at least six months; provided, however, that server support has not since been restored.

(D) “Local gameplay” means gameplay conducted on a personal computer or video game console, or locally connected personal computers or consoles, and not through an online service or facility.

(E) A library, archives, or museum is considered “eligible” when the collections of the library, archives, or museum are open to the public and/or are routinely made available to researchers who are not affiliated with the library, archives, or museum.

J. Proposed Class 10: Computer Programs—Security Research

1. Background

a. Summary of Proposed Exemption

Proposed Class 10 seeks to expand the existing exemption allowing circumvention for the purpose of conducting good-faith security research on certain types of software-enabled devices and machines. In the 2015 rulemaking, the Office received multiple petitions from researchers seeking to access TPM-protected computer programs in various devices to test those programs for potential security flaws and vulnerabilities. The Register ultimately recommended, and the Librarian granted, an exemption permitting circumvention for that purpose, subject to a number of limitations.¹⁷²⁹ Perhaps most notably, rather than authorizing circumvention on software-enabled devices generally, the exemption is limited to the specific categories of devices that were the focus of the record in that proceeding: (1) devices or machines primarily designed for use by individual consumers (including voting machines); (2) motorized land vehicles; and (3) medical devices designed for whole or partial implantation in patients, as well as corresponding personal monitoring systems.

The exemption also prescribes several eligibility requirements for users. First, the machine or device on which the circumvention is undertaken must be “lawfully acquired.” Second, the circumvention must be “solely for the purpose of good-faith security research,” which is defined in part to mean “accessing a computer program solely for purposes of good-faith testing, investigation and/or correction of a security flaw or vulnerability.” Third, the research activity must be “carried out in a controlled environment designed to avoid any harm to individuals or the public.” Fourth, “the information derived from” the research activity must be “used primarily to promote the security or safety of the class of devices or machines on which the computer program

¹⁷²⁹ See 37 C.F.R. § 201.40(b)(7) (2016).

operates, or those who use such devices or machines,” and may not be “used or maintained in a manner that facilitates copyright infringement.” Finally, the circumvention may not “violate any applicable law, including without limitation the Computer Fraud and Abuse Act of 1986.”

Petitions to expand the current exemption were filed by CDT; Professors Felten and Halderman (collectively, “Felten/Halderman”); and Professor Green. The CDT and Felten/Halderman petitions sought substantially the same changes. Each requested the removal of the language limiting the exemption to particular device categories, as well as full or partial removal of all of the above eligibility conditions.¹⁷³⁰ They did not provide proposed exemption language, but the combination of their requests would result in the following changes:

~~(i) Computer programs, where the circumvention is undertaken on a lawfully acquired device or machine on which the computer program operates solely for the purpose of good-faith security research and does not violate any applicable law, including without limitation the Computer Fraud and Abuse Act of 1986, as amended and codified in title 18, United States Code; and provided, however, that, except as to voting machines, such circumvention is initiated no earlier than 12 months after the effective date of this regulation, and the device or machine is one of the following:~~

~~(A) A device or machine primarily designed for use by individual consumers (including voting machines);~~

~~(B) A motorized land vehicle; or~~

~~(C) A medical device designed for whole or partial implantation in patients or a corresponding personal monitoring system, that is not and will not be used by patients or for patient care.~~

(ii) For purposes of this exemption, “good-faith security research” means accessing a computer program solely for purposes of good-faith testing, investigation and/or correction of a security flaw or vulnerability, where such activity is carried out in a controlled environment designed to avoid any harm to individuals or the public, and where the information derived from the activity is used primarily to promote the security or safety of the class of devices or machines on which the computer program operates, or those who use such devices or machines, and is not used or maintained in a manner that facilitates copyright infringement.

¹⁷³⁰ CDT Class 10 Pet. at 3; Felten & Halderman Class 10 Pet. at 2–3.

Professor Green’s petition proposed, as a “helpful starting point” for an amended exemption, the language recommended by NTIA in 2015:

Computer programs, in the form of firmware or software, regardless of the device on which they are run, when circumvention is initiated by the owner of the copy of the computer program or with the permission of the owner of the copy of the computer program, in order to conduct good faith security research. This exemption does not obviate the need to comply with other applicable laws and regulations.¹⁷³¹

In addition to the petitioners, parties submitting comments in support of an expanded exemption included Consumers Union; FSF; Rapid7, Bugcrowd, Duo Security, HackerOne, and Luta Security (collectively, “Rapid7 et al.”); and the U.S. Public Policy Council of the Association for Computing Machinery (“USACM”). Comments in opposition were filed by ACT; Auto Alliance; BSA; DVD CCA and AACCS LA; Dominion Election Systems, Election Systems & Software, and Hart InterCivic (collectively, “Election System Providers”); Joint Creators II; the National Association of Secretaries of State; North Dakota Secretary of State Al Jaeger; and SIIA. A comment taking no position on the request was filed by Professors Bellovin, Blaze, and Heninger.

b. Overview of Issues

Proponents argue that while the existing exemption is “a positive step toward enabling security research,” the current language contains limitations that unnecessarily restrict its scope, as well as ambiguities that chill legitimate research.¹⁷³² These provisions, they assert, have caused researchers to avoid publicly beneficial research activities at a time when cybersecurity threats are becoming increasingly prevalent in numerous facets of life.¹⁷³³ Specifically, they raise the following concerns:

- They argue that the list of covered device categories (the “Device Limitation”) is ambiguous because it does not provide a standard for determining whether a device is “primarily designed for use by individual consumers.”¹⁷³⁴ In addition, proponents contend that this provision is unduly restrictive because it excludes a variety of other devices and systems that researchers have a legitimate interest in

¹⁷³¹ Green Class 10 Pet. at 2 (quoting NTIA 2015 Letter at 89).

¹⁷³² Felten & Halderman Class 10 Initial at 2.

¹⁷³³ CDT Class 10 Initial at 2–3; Felten & Halderman Class 10 Initial at 3–4; *id.* at 36 (statement of Professors Felten and Halderman).

¹⁷³⁴ Felten & Halderman Class 10 Initial at 5, 18.

- studying—for example, building automation systems, commercial networking equipment, and traffic control systems.¹⁷³⁵
- They argue that the requirement that a device be “lawfully acquired” (the “Lawfully Acquired Limitation”) should be removed because issues surrounding the acquisition of physical property are outside the proper scope of copyright law.¹⁷³⁶
 - They object to the two references to “solely” —the requirement that circumvention be “solely” for the purpose of good-faith security research, and the definition of such research as accessing a program “solely” for purposes of good-faith testing, investigation, and/or correction (the “Access Limitation”). In proponents’ view, this provision threatens to chill First Amendment-protected speech because it arguably prohibits circumvention in furtherance of “broader aims” such as “scientific dialogue, academic peer review, and classroom teaching.”¹⁷³⁷
 - They argue that the requirement that the research be “carried out in a controlled environment designed to avoid any harm to individuals or the public” (the “Controlled Environment Limitation”) is ambiguous because it does not define when an environment is “controlled.”¹⁷³⁸ Felten/Halderman further contend that this provision prevents field research, “where the environment is purposefully uncontrolled” so that researchers can observe “how a system interacts with a live and unpredictable environment.”¹⁷³⁹
 - They argue that the “Use Limitation” (“the information derived from the activity is used primarily to promote the security or safety of the class of devices or machines . . . or those who use such devices or machines, and is not used or maintained in a manner that facilitates copyright infringement”) inhibits discussion and publication of research findings by not defining when such

¹⁷³⁵ *Id.* at 5, 19–20; see CDT Class 10 Initial at 3–4; FSF Class 10 Initial at 2; Green Class 10 Initial at 2; USACM Class 10 Initial at 2; see also Consumers Union Class 10 Initial at 2 (supporting expansion “to cover a broader range of products”).

¹⁷³⁶ Felten & Halderman Class 10 Initial at 23–24; see CDT Class 10 Initial at 5.

¹⁷³⁷ Felten & Halderman Class 10 Initial at 24–25; see also CDT Class 10 Initial at 4; Green Class 10 Reply at 3.

¹⁷³⁸ CDT Class 10 Initial at 4; Felten & Halderman Class 10 Initial at 5.

¹⁷³⁹ Felten & Halderman Class 10 Initial at 38 (statement of Professors Felten and Halderman).

activity is “primarily” for the permitted purposes.¹⁷⁴⁰ They also contend that this provision subjects researchers to liability based on the actions of third parties.¹⁷⁴¹

- They argue that the requirement that the circumvention “not violate any applicable law” (the “Other Laws Limitation”) should be removed because it “potentially exports the DMCA’s harsh criminal and civil liability into other non-copyright legal regimes, exposing researchers to double liability.”¹⁷⁴²

Opponents object to removal of each of these provisions, arguing that the current language appropriately balances the interests of security researchers, copyright owners, and the general public. In their view, the adverse effects asserted by proponents are unsupported by the record and are based on unreasonable readings of the relevant text. Opponents also variously argue that removing the limitations would render the class impermissibly broad, give rise to infringing uses, and jeopardize public safety and national security.

Following the close of the public comment period and the completion of the public hearings, the Office received a letter concerning this class from CCIPS. The CCIPS letter stated that “[m]any of the changes sought in the petition appear likely to promote productive cybersecurity research, and CCIPS supports them,” subject to certain limitations.¹⁷⁴³ With respect to the Device Limitation, CCIPS advised that it would support eliminating the language confining the exemption to devices “primarily designed for use by individual consumers.”¹⁷⁴⁴ It recommended clarification of the Controlled Environment Limitation and said that it “would not object to its removal.”¹⁷⁴⁵ As to the Lawfully Acquired Limitation, CCIPS stated that while “the term ‘lawfully acquired’ is not itself ambiguous,” it agreed that the exemption should not turn on contractual terms purporting to limit the use of the device.¹⁷⁴⁶ It concluded, however, that the current language is preferable to conditioning the exemption on ownership of a particular copy of software.¹⁷⁴⁷ CCIPS also addressed the Other Laws Limitation, stating

¹⁷⁴⁰ *Id.* at 25; *see* CDT Class 10 Initial at 5.

¹⁷⁴¹ Felten & Halderman Class 10 Initial at 26; *see* CDT Class 10 Initial at 5; Rapid7 et al. Class 10 Initial at 2–3.

¹⁷⁴² Felten & Halderman Class 10 Initial at 5; *see also* CDT Class 10 Initial at 4; Rapid7 et al. Class 10 Initial at 2.

¹⁷⁴³ CCIPS Letter at 2.

¹⁷⁴⁴ *Id.* at 4.

¹⁷⁴⁵ *Id.*

¹⁷⁴⁶ *Id.* at 5.

¹⁷⁴⁷ *Id.*

that it would not object to removal of the phrase “any applicable law” were it standing alone, but that it recommends retaining the express reference to the CFAA.¹⁷⁴⁸

2. Discussion

a. Scope of the Proposed Class

The Acting Register first addresses a contention advanced by several opponents that removing the Device Limitation would render the class overbroad.¹⁷⁴⁹ They argue that an exemption covering all software, regardless of device in which it is located, would fail to satisfy the legislative history’s directive that a class should be “a narrow and focused subset of the broad categories of works . . . identified in section 102 of the Copyright Act.”¹⁷⁵⁰ BSA and Election System Providers note that in 2015 the Register cited that language in declining to recommend extending the current exemption to “all computer programs on all systems and devices, including highly sensitive systems such as nuclear power plants and air traffic control systems.”¹⁷⁵¹ In addition, Joint Creators II assert that a class defined in this manner could be read to encompass databases, which was expressly excluded from the 2015 exemption.¹⁷⁵²

Proponents respond that the Register included the Device Limitation not because of overbreadth concerns, but “only because she concluded that the record did not support granting a more broadly-defined exemption.”¹⁷⁵³ Here, they argue, the record does provide such support, as there is evidence that researchers are adversely affected in their ability to make noninfringing uses of non-consumer devices and systems.¹⁷⁵⁴

Proponents further contend that the proposed class is sufficiently narrow because computer programs are a subset of literary works—one of the broad categories identified in section 102—and because “the prohibition on circumvention similarly affects security research on all types of software-enabled devices and systems.”¹⁷⁵⁵

¹⁷⁴⁸ *Id.* at 5–6.

¹⁷⁴⁹ See ACT Class 10 Opp’n at 3; BSA Class 10 Opp’n at 5; Election System Providers Class 10 Opp’n at 17; Joint Creators II Class 10 Opp’n at 4–5; SIIA Class 10 Opp’n at 3.

¹⁷⁵⁰ Commerce Comm. Report at 38; see ACT Class 10 Opp’n at 3; BSA Class 10 Opp’n at 5; Election System Providers Class 10 Opp’n at 17; Joint Creators II Class 10 Opp’n at 5.

¹⁷⁵¹ 2015 Recommendation at 317; see BSA Class 10 Opp’n at 5; Election System Providers Class 10 Opp’n at 17.

¹⁷⁵² Joint Creators II Class 10 Opp’n at 7 (citing 2015 Recommendation at 253–54).

¹⁷⁵³ Felten, Halderman & CDT Class 10 Reply at 11–12 (citing 2015 Recommendation at 253–54, 317).

¹⁷⁵⁴ *Id.* at 12.

¹⁷⁵⁵ *Id.* at 12–13.

The Acting Register agrees that the requested expansion appropriately describes “a particular class” within the meaning of the statute.¹⁷⁵⁶ As proponents correctly note, computer programs are a subcategory of literary works.¹⁷⁵⁷ And importantly, the proposed class here is further refined by reference to a specific set of permitted activities.¹⁷⁵⁸ Further, while the 2015 Recommendation did quote the legislative history’s “narrow and focused subset” language in recommending adoption of the Device Limitation, it did so in the context of concluding that “[t]he record [did] not support the open-ended exemption urged by . . . proponents.”¹⁷⁵⁹ The Register emphasized that the proponents’ arguments “focused largely on consumer-oriented software and products” and that “[n]o showing was made to justify access to other types of software or explain how such an exemption would work.”¹⁷⁶⁰ It was for that reason—and not because of any conclusion that software is an inherently overbroad category—that she recommended limiting the exemption to the particular types of devices listed in the current rule.¹⁷⁶¹ Nothing in the 2015 Recommendation counsels against defining a class to include computer programs generally where the record establishes that users of such works are similarly affected by the prohibition on circumvention, and where, as here, the class is further narrowed by reference to particular types of uses.¹⁷⁶²

As to Joint Creators II’s concern regarding databases, the Acting Register again finds no record evidence of a need by proponents to access such works for purposes of security research.¹⁷⁶³ Databases, moreover, are not a subset of computer programs; rather, they are considered compilations under the copyright law.¹⁷⁶⁴ Accordingly, the Acting Register does not consider databases to be within the proposed class.

¹⁷⁵⁶ 17 U.S.C. § 1201(a)(1)(C).

¹⁷⁵⁷ See *id.* § 101 (definitions of “computer program” and “[l]iterary works”).

¹⁷⁵⁸ See 2006 Recommendation at 10 (“[I]n appropriate circumstances a ‘class of works’ that is defined initially by reference to a section 102 category of works or a subcategory thereof, may additionally be refined . . . by reference to the particular type of use and/or user to which the exemption shall be applicable.”).

¹⁷⁵⁹ 2015 Recommendation at 317.

¹⁷⁶⁰ *Id.*

¹⁷⁶¹ *Id.* (“Accordingly, the exemption is limited in that respect.”).

¹⁷⁶² See House Manager’s Report at 7 (suggesting that Register should look to whether the prohibition on circumvention affects the availability of works in different categories in the same way).

¹⁷⁶³ See 2015 Recommendation at 253–54.

¹⁷⁶⁴ See U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 727.1 (3d ed. 2017) (“For purposes of copyright registration, a ‘database’ is defined as a compilation of digital information comprised of data, information, abstracts, images, maps, music, sound recordings,

b. Works Protected by Copyright

As under the current exemption, the proposed class is defined to include computer programs, which are copyrightable works. Therefore, the Acting Register finds that at least some works included in the proposed class are protected by copyright.

c. Asserted Noninfringing Uses

In arguing that their proposed uses are noninfringing, proponents focus primarily on the activities prohibited by the Device Limitation—that is, security research conducted on devices and systems beyond those listed in the current exemption. While specific examples of these proposed areas of research are discussed below in connection with adverse effects, proponents contend that they share common noninfringing bases. Proponents argue that most security research is noninfringing because it involves elements of programs that “are largely functional in nature” and therefore “are not likely to be protected by copyright.”¹⁷⁶⁵ Additionally, they assert that such research typically does not implicate the exclusive rights of copyright owners because “nothing is reproduced, distributed, or adapted” except in an incidental manner.¹⁷⁶⁶ Proponents note, however, that in some cases a security researcher “may copy the code (typically onto a general-purpose computer for analysis), modify the code (for example, to detect or patch a security vulnerability or safety issue), and distribute the code as part of scholarly discourse.”¹⁷⁶⁷ In those circumstances, they argue, the activity is noninfringing on one or both grounds relied upon by the Register in 2015—section 117 and fair use.

i. Section 117

Section 117(a) allows the owner of a copy of a computer program to make or authorize the making of a copy or adaptation of the program, provided (1) the copy or adaptation “is created as an essential step in the utilization of the computer program with a machine,” or (2) the copy or adaptation is “for archival purposes only.”¹⁷⁶⁸ In 2015, the Register found that vehicle owners may qualify as owners of vehicle ECU programs, with the possible exception of entertainment and telematics systems subject to written licenses.¹⁷⁶⁹ She further found that many of the reproductions and adaptations involved

video, other digitized material, or references to a particular subject or subjects.”) (bolding omitted); 2015 Recommendation at 253–54.

¹⁷⁶⁵ Felten & Halderman Class 10 Initial at 11.

¹⁷⁶⁶ *Id.*

¹⁷⁶⁷ Green Class 10 Initial at 3.

¹⁷⁶⁸ 17 U.S.C. § 117(a).

¹⁷⁶⁹ 2015 Recommendation at 300–04.

in vehicle security research are likely to meet the statutory requirements, either because they are an “essential step” in identifying potential flaws, or because they constitute back-up copies that would satisfy the “archival purposes” provision.¹⁷⁷⁰ Because the 2015 proponents did not address section 117’s possible relationship to research on other devices, the Register expressed no view on its applicability in those contexts.

The current proponents briefly argue that section 117 may protect research involving a broader range of devices. Felten/Halderman assert that “[t]o the extent that security research performed on software outside the context of vehicles meets the ownership requirement and meets the essential step requirement, it is a noninfringing use under Section 117.”¹⁷⁷¹ Green urges the Acting Register to recognize the general proposition that “the owner of a physical device is typically also the owner of the copy of the software needed to operate that device and make it useful.”¹⁷⁷² He argues that researchers who lawfully acquire a device satisfy the tests for ownership under *Krause* and *Vernor* because they ordinarily pay substantial consideration, the software operates for their benefit or at their direction, they may dispose of the device whenever they wish, and the manufacturer generally does not retain the right to repossess the software.¹⁷⁷³

Among the opponents, only Election System Providers offer a detailed response. They contend that election software is licensed, rather than sold, to state and local governments, and that licensing agreements restrict the governments’ ability to transfer their copies.¹⁷⁷⁴ Therefore, they argue, “even if a state or local government purported to sell its copy of election software to a researcher,” the researcher would not be the owner of that copy, and thus could not rely on section 117.¹⁷⁷⁵

The Acting Register finds that proponents have failed to demonstrate that security research involving devices, generally, is likely noninfringing under section 117. As prior rulemakings have made clear, the question of ownership under section 117 is a fact-specific inquiry that turns on the particular features of the relationship between the owner of the copyright in the software and device owners.¹⁷⁷⁶ While the ownership analysis provided by Green may well be accurate as to some categories of software-enabled devices, he offered no evidence that would enable the Acting Register to reach

¹⁷⁷⁰ 2015 Recommendation at 304–05.

¹⁷⁷¹ Felten & Halderman Class 10 Initial at 12.

¹⁷⁷² Green Class 10 Reply at 2.

¹⁷⁷³ *Id.*; see also *Krause*, 402 F.3d at 124; *Vernor*, 621 F.3d at 1111.

¹⁷⁷⁴ Election System Providers Class 10 Opp’n at 18.

¹⁷⁷⁵ *Id.* (emphasis omitted).

¹⁷⁷⁶ See, e.g., 2015 Recommendation at 222–23, 238, 263–64, 304; 2012 Recommendation at 91–93.

that conclusion with respect to such devices generally. Indeed, Green does not contest Election System Providers' showing that such an assumption would *not* be correct in the context of voting software. The same conclusion appears likely with respect to much of the software used to operate the large-scale infrastructure proponents seek to research under an expanded exemption. Proponents' evidence thus is insufficient to support a finding that their proposed uses are likely noninfringing on this ground.

ii. Fair Use

Proponents contend that the additional research activities encompassed by their proposed expansion are fair uses. In their view, the fair use analysis relied upon by the Register in recommending the current exemption is equally applicable to their proposal.¹⁷⁷⁷ With the exception of Auto Alliance and Election System Providers, opponents generally do not respond to these arguments.

Regarding the first factor, Felten/Halderman note that in 2015 the Register found that many of the proposed uses were likely to be transformative and that "good-faith security research 'encompasses several of the favored activities listed in the preamble of section 107.'" ¹⁷⁷⁸ They contend that their additional proposed activities "are of the same purpose and character" as these uses and involve all of the "paradigmatic fair uses in Section 107's preamble: criticism, comment, news reporting, teaching, scholarship, [and] research."¹⁷⁷⁹ Green cites *Sega* and *Connectix* for the proposition that research into functional aspects of software is a legitimate purpose under the first factor.¹⁷⁸⁰ He also emphasizes that security research serves a socially beneficial purpose, noting that "[i]t is well-recognized in the security community that security can only be reliably obtained when a system is subject to widespread testing."¹⁷⁸¹

In response, Auto Alliance and Election System Providers suggest that the analysis under the first factor must take into account all of the proposed changes to the current exemption, not just the removal of the Device Limitation. These changes are relevant, they argue, because they could allow users to engage in conduct beyond the narrow research activities described by proponents. For example, Auto Alliance posits that removal of the Access and Use Limitations "would weigh against the first fair use factor because the expanded exemption would then apply to a broader range of uses,

¹⁷⁷⁷ See Felten & Halderman Class 10 Initial at 12–13; Green Class 10 Initial at 2.

¹⁷⁷⁸ Felten & Halderman Class 10 Initial at 13 (quoting 2015 Recommendation at 300).

¹⁷⁷⁹ *Id.* at 14.

¹⁷⁸⁰ Green Class 10 Initial at 3.

¹⁷⁸¹ *Id.* at 4 (citing Bruce Schneier, *The Insecurity of Secret IT Systems*, SCHNEIER ON SECURITY (Feb. 14, 2014), https://www.schneier.com/blog/archives/2014/02/the_insecurity_2.html).

including commercial activities, that may not be transformative.”¹⁷⁸² It further asserts that “removal of the Controlled Environment Limitation and the Lawfully Acquired Limitation would raise safety concerns, because such a broadened exemption would permit researchers to interfere with automobiles on public roads, even cars that researchers do not lawfully own.”¹⁷⁸³ Similarly, Election System Providers contend that without these limitations, “the additional activity proposed here is much less connected to . . . salutary [research] ends.”¹⁷⁸⁴ They argue that “[i]t is difficult to see how copying to advance the interests of a foreign adversary or interfere in a U.S. election could possibly be favored uses under U.S. copyright law, even if the results were publicly disclosed.”¹⁷⁸⁵

Proponents maintain that that the research activities in which they seek to engage “are the same as those uses proposed in 2015” and that their proposal “does not seek to insulate activities that go beyond security research.”¹⁷⁸⁶ More specifically, Felten/Halderman disclaim any intention to work on unlawfully obtained devices.¹⁷⁸⁷ At the hearing, moreover, proponents testified that in the case of research on large-scale structures such as building HVAC systems, their practice is to obtain advance permission of the owner or operator of the system.¹⁷⁸⁸ Proponents also stress that their

¹⁷⁸² Auto Alliance Class 10 Opp’n at 4.

¹⁷⁸³ *Id.* at 5.

¹⁷⁸⁴ Election System Providers Class 10 Opp’n at 19.

¹⁷⁸⁵ *Id.*

¹⁷⁸⁶ *See* Felten & Halderman Class 10 Initial at 13. In 2015, the proponents defined “good-faith security research” to include:

[G]ood-faith testing for, investigation of, and discovery of software flaws and vulnerabilities that implicate privacy, security, and safety concerns; alerting consumers and companies to the existence of such flaws and vulnerabilities; teaching students and providing them with hands-on experience investigating real systems and devices; publicizing scientific findings related to the investigation of software flaws and vulnerabilities through academic publications, conference presentations, and other discussions of software and device security; and applying research discoveries to correct vulnerabilities and create better functioning and more secure software.

2015 Recommendation at 255–56.

¹⁷⁸⁷ Felten & Halderman Class 10 Initial at 17 (“There is no record indicating that researchers ever intend to work on unlawfully obtained devices.”).

¹⁷⁸⁸ *See* Tr. at 112:19–113:13 (Apr. 10, 2018) (Walsh, EFF) (stating that Professor Green would not seek to do research on a toll collection system without the authorization of the system owner); Tr. at 122:04–08 (Apr. 10, 2018) (Reid, Felten/Halderman) (“[W]e might talk about doing a security research experiment on the HVAC system in a building. Now, in a case like that, we’re obviously going to do coordination with the owner or the operator of the building.”); Tr. at 133:07–13 (Apr.

proposed research “does not risk human injury or harm,” is limited by “[s]trict norms and customs,” and “would not be conducted on voting systems during a live election or on a vehicle on a public road.”¹⁷⁸⁹ The Acting Register accordingly understands the proposed uses in this class to be limited in accordance with proponents’ statements, and will conduct her fair use analysis on that basis.¹⁷⁹⁰ Given proponents’ representations, opponents’ concerns regarding the removal of specific limitations relate more squarely to the asserted adverse effects on noninfringing uses, and therefore the Acting Register will consider those issues below.

With the proposed uses defined in this manner, the Acting Register concludes that the first factor weighs in favor of fair use. As the Register found in recommending the current exemption, many of the activities involved in security research are likely to be transformative, as the copying and alteration of the programs are for the purpose of providing information about those works—their susceptibility to security breaches—and do not “merely ‘supersede[] the objects’ of the original creation.”¹⁷⁹¹ In addition, as the Register also found in 2015, good-faith security research promotes several of the activities identified in section 107 as examples of favored purposes, including criticism, comment, teaching, scholarship, and research.¹⁷⁹² These conclusions are just as applicable to good-faith research involving non-consumer devices and systems as they are to the research covered by the existing exemption.

In addition, the Acting Register credits the view expressed by CCIPS that the public benefits provided by security research are not limited to research involving consumer devices. CCIPS observes that “[b]oth consumer-operated, network-enabled home

10, 2018) (Halderman, Univ. of Mich.) (“[I]f security researchers are doing research that has the possibility of causing harm to the operator of the device, they’re going to make sure that that device is one that they have, that they own or have the permission of the device owner to test with, and they’re going to take steps to mitigate that harm.”).

¹⁷⁸⁹ Felten, Halderman & CDT Class 10 Reply at 17, 19; *see also* Felten & Halderman Class 10 Initial at 38 (statement of Professors Felten and Halderman) (“Importantly, this type of research does not include research that would risk human injury or harm.”).

¹⁷⁹⁰ Put another way, while the Acting Register agrees that removal of the Access and Use Limitations in a vacuum might suggest a use less connected to the purposes of scholarship and research relevant to the fair use analysis, proponents’ representations preclude those uses.

¹⁷⁹¹ *Campbell*, 510 U.S. at 579 (citation omitted); *see also* *Google Books*, 804 F.3d at 215–16 (“[C]opying from an original for the purpose of criticism or commentary on the original or provision of information about it, tends most clearly to satisfy *Campbell*’s notion of the ‘transformative’ purpose involved in the analysis of Factor One.”).

¹⁷⁹² 2015 Recommendation at 300; *see* 17 U.S.C. § 107 (listing purposes of “criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research”).

appliances (often associated with the ‘internet of things’) and industrial-grade network routing and switching equipment can contain security vulnerabilities that can pose threats to data security, critical infrastructure, and public safety.”¹⁷⁹³ It further notes that “[i]n some cases, vulnerabilities contained in industrial grade servers or networking equipment may present even greater risks to the public than security flaws in consumer goods, highlighting the importance of legitimate security research on such devices.”¹⁷⁹⁴ These considerations further tip the first factor in favor of fair use.

As to the second factor, Felten/Halderman contend that the nature of the works favors fair use for the same reason cited by the Register in 2015—that a program used to operate a device is likely to be “largely functional in nature.”¹⁷⁹⁵ Green relies on *Sega* and *Connectix* to argue that this factor is favorable because device software “contains ‘unprotected aspects that cannot be examined without copying.’”¹⁷⁹⁶ Election System Providers respond that the Register’s 2015 analysis was limited to software in consumer products, and therefore it should not apply to the “much broader and more varied” class proposed here.¹⁷⁹⁷ In their view, the second factor weighs against fair use with respect to election software other than that in voting machines. These other programs, they argue, are “user-oriented applications with significant functionality, user interfaces and business workflows, and hence much higher expressive content” than the device-enabling software at issue in the last rulemaking.¹⁷⁹⁸

The Acting Register concludes that this factor favors fair use. While the proposed class includes computer programs generally, the record indicates that proponents’ intended activities are focused on programs used to operate machines, devices, or systems. The examples cited by proponents include software in building automation systems,

¹⁷⁹³ CCIPS Letter at 4.

¹⁷⁹⁴ *Id.* At the same time, CCIPS also emphasized the importance of the phrase “good-faith” in this context:

Security research conducted in bad faith—for example, for the purpose of discovering security holes in software in order to exploit them for illicit financial gain rather than to improve security generally, or to extort the owners of such devices or the data within them—might be called “research,” but is not in good faith. Merely labeling conduct “security research” should not be a basis for avoiding criminal or civil liability for circumvention of technological protection measures for purposes of infringement or similar bad faith conduct.

Id. at 3. The Acting Register agrees with these views.

¹⁷⁹⁵ Felten & Halderman Class 10 Initial at 15 (quoting 2015 Recommendation at 301).

¹⁷⁹⁶ Green Class 10 Initial at 5 (quoting *Connectix*, 203 F.3d at 603).

¹⁷⁹⁷ Election System Providers Class 10 Opp’n at 19.

¹⁷⁹⁸ *Id.*

commercial networking equipment, traffic control systems, avionics systems, and drones.¹⁷⁹⁹ Like the programs encompassed by the current exemption, these programs “are likely to fall on the functional rather than creative end of the spectrum.”¹⁸⁰⁰ Moreover, there is no basis to conclude as a general matter, as Election Service Providers suggest, that computer programs stored on non-consumer devices are more likely to contain highly expressive content than those on the consumer devices covered by the current exemption. In any event, as Green correctly notes, to the extent good-faith security research requires the reproduction of copyrightable elements of a program to examine its unprotected aspects, the second factor does not weigh against a finding of fair use.¹⁸⁰¹

With respect to the third factor, proponents acknowledge that security research may involve copying all or substantial portions of a program, but they assert that doing so “is merely incidental to the goal of the research, and is necessary to adequately investigate security concerns.”¹⁸⁰² For substantially the same reasons as those stated in the 2015 Recommendation, the Acting Register finds this factor to be of little significance. There, the Register noted that “[c]ourts have been willing to permit complete copying of the original work . . . where it is necessary to accomplish a transformative purpose.”¹⁸⁰³ She also noted the *Sega* court’s determination that the third factor is not accorded significant weight where functional elements of a program cannot be investigated without some intermediate reproduction.¹⁸⁰⁴ Here, the record indicates that the use of substantial portions of programs is often necessary to achieve the transformative purposes promoted by good-faith security research.¹⁸⁰⁵ The Acting Register therefore again concludes that “while the third factor arguably disfavors a fair use finding, the weight to be given to it under the circumstances is slight.”¹⁸⁰⁶

¹⁷⁹⁹ Felten & Halderman Class 10 Initial at 19–20; *see also* CDT Class 10 Initial at 2–3 (similar).

¹⁸⁰⁰ 2015 Recommendation at 301.

¹⁸⁰¹ *See Connectix*, 203 F.3d at 603–05; *Sega*, 977 F.2d at 1526.

¹⁸⁰² Felten & Halderman Class 10 Initial at 16.

¹⁸⁰³ 2015 Recommendation at 301 (citing *HathiTrust*, 755 F.3d at 98, and *Arriba Soft*, 336 F.3d at 820–21).

¹⁸⁰⁴ *Id.* (citing *Sega*, 977 F.2d at 1526–27).

¹⁸⁰⁵ The Acting Register nevertheless notes that proponents make somewhat inconsistent statements regarding how often such uses are necessary. *Compare* Felten & Halderman Class 10 Initial at 11 (“[I]n most security research, nothing is reproduced, distributed, or adapted.”), *with* Green Class 10 Initial at 5 (“Security research necessarily requires the use of the entire work, since vulnerabilities may be found anywhere in the code.”).

¹⁸⁰⁶ 2015 Recommendation at 301.

For the fourth factor, proponents point to the Register's 2015 finding that the proposed security research would not usurp the market for any of the subject computer programs, given that researchers would be lawfully obtaining copies of those works.¹⁸⁰⁷ In addition, they note the Register's finding that potential reputational harms resulting from negative publicity about the opponents' software were "not the 'concern' of copyright," and therefore did not tip the second factor against fair use.¹⁸⁰⁸ Proponents argue that the same conclusions are applicable here. In their view, the additional research authorized by their proposal would not provide a market substitute for any software, and any risk of reputational injury to copyright owners as a result of the disclosure of security flaws is irrelevant under the fourth factor.¹⁸⁰⁹ Felten/Halderman further state that, in any event, "[m]uch of that harm will likely be avoided through coordinated disclosure with the company."¹⁸¹⁰

Felten/Halderman additionally contend that the foregoing analysis should not depend on retaining the Lawfully Acquired Limitation, which limits the current exemption to circumvention undertaken on a "lawfully acquired device or machine." They acknowledge that the Register's analysis in 2015 was premised on the understanding that the relevant copies would be lawfully obtained, and they note that "[t]here is no record indicating that researchers ever intend to work on unlawfully obtained devices."¹⁸¹¹ Nevertheless, they urge that this understanding "does not need to be codified by including the 'lawfully acquired' wording that exists in the current exemption," which they believe is ambiguous regarding situations where the ownership of a device is in dispute.¹⁸¹²

Election System Providers counter that, absent regulatory safeguards to ensure that the research will be used for socially beneficial purposes, "it must be assumed that such research could be used in ways that would threaten the integrity of elections as well as the market for election software."¹⁸¹³ As examples, they suggest that the use of research to sell information to a foreign adversary or to disrupt an election "could well scare local election officials away from particular products or providers, or even back to hand count systems, to the detriment of the market for election software."¹⁸¹⁴ They also object to

¹⁸⁰⁷ Felten & Halderman Class 10 Initial at 16–17 (citing 2015 Recommendation at 301–02).

¹⁸⁰⁸ *Id.* at 16 (quoting 2015 Recommendation at 302); *see also* Green Class 10 Initial at 6.

¹⁸⁰⁹ *Id.* at 17; *accord* Green Class 10 Initial at 6.

¹⁸¹⁰ Felten & Halderman Class 10 Initial at 17.

¹⁸¹¹ *Id.*

¹⁸¹² *Id.* (stating "there is a significant risk that researchers will obtain devices through legal means and later be threatened by liability due to an unknown third-party no-resale contract").

¹⁸¹³ Election System Providers Class 10 Opp'n at 20.

¹⁸¹⁴ *Id.*

proponents' request to remove the Lawfully Acquired Limitation, arguing that obtaining software without paying the customary price constitutes "classic market harm."¹⁸¹⁵

The parties are correct to recognize that the Register's prior finding under the fourth factor was rooted in her determination that the proposed research would take place only on lawfully obtained copies of software. As Election Service Providers correctly note, acquiring a device in violation of law would weigh heavily against a fair use finding, as it plainly is conduct that, were it to become widespread, would adversely affect the software copyright owner's potential market.¹⁸¹⁶ The Acting Register accordingly believes that the exemption should continue to expressly prohibit circumvention under those circumstances. The Acting Register will consider proponents' specific concerns regarding the current formulation of the Lawfully Acquired Limitation when discussing adverse effects below.

Subject to this limitation, the Acting Register concludes that the fourth factor favors fair use. As was true of the software at issue in 2015, there is no indication in the record that good-faith security research will usurp the market for software in non-consumer devices and systems. The Acting Register finds the speculative market concerns raised by Election System Providers to be unavailing. The actions of bad actors seeking to access election software for criminal purposes would not qualify as "good-faith security research," and thus they are outside the scope of the proposal. Moreover, the harms referred to by Election System Providers describe customers being "scare[d] . . . away from" software providers after their products are found to have security vulnerabilities.¹⁸¹⁷ That is precisely the type of reputational harm that the courts have held non-cognizable under the fourth factor.¹⁸¹⁸

Based on the foregoing analysis, the Acting Register finds that proponents have demonstrated that the proposed uses are likely to be fair.

d. Causation

The Acting Register finds that proponents have met their burden of showing that the prohibition on circumvention of access controls limits their ability to make the noninfringing uses described above. But for the prohibition on circumvention, users likely could gain lawful access to the computer programs in the proposed class in order to engage in those activities.

¹⁸¹⁵ *Id.*

¹⁸¹⁶ *See Campbell*, 510 U.S. at 590.

¹⁸¹⁷ Election System Providers Class 10 Opp'n at 20.

¹⁸¹⁸ *See* 2015 Recommendation at 302 (citing *Campbell*, 510 U.S. at 592).

e. Asserted Adverse Effects

Proponents argue that their ability to conduct noninfringing security research is adversely affected by the limitations in the current exemption. The Acting Register will consider these challenged provisions individually, and then address the statutory factors in relation to the proposed exemption as a whole.

i. Current Limitations

Device Limitation. Proponents contend that this provision chills legitimate security research involving devices and systems that are not clearly “designed for use by individual consumers.”¹⁸¹⁹ As discussed above, proponents believe that the current exemption fails to accommodate a growing need for investigation of security features in “a wide range of other critical systems, including infrastructure and industrial equipment.”¹⁸²⁰ Specifically, they suggest that the Device Limitation is currently inhibiting research into building automation systems, cryptographic banking, avionics, traffic control infrastructure, and cloud computing systems;¹⁸²¹ -industrial-grade firewall and private network modules, hardware encryption devices, toll collection systems, non-implantable medical devices;¹⁸²² and other critical systems, including industrial equipment and infrastructure that communicates with computerized vehicles.¹⁸²³ Proponents identify a variety of TPMs likely to be employed on these systems, noting that they are the same as the measures considered in 2015.¹⁸²⁴ These include “challenge-response mechanisms such as access codes, passwords, keys, or digital signatures; encryption; and software features designed to prevent tampering with or changing the software, such as code obfuscation and runtime checks.”¹⁸²⁵

Opponents’ principal arguments against removal of the Device Limitation are those discussed above relating to the scope of the class and the asserted noninfringing uses. Two opponents, however, raise objections bearing on proponents’ asserted adverse effects. First, BSA notes that in 2015 the Register found it relevant that the proponents failed to explain “why research into critical systems is not being or could not be

¹⁸¹⁹ Felten & Halderman Class 10 Initial at 18.

¹⁸²⁰ CDT Class 10 Initial at 3; *accord* Felten & Halderman Class 10 Initial at 19–21; Green Class 10 Initial at 2.

¹⁸²¹ Felten & Halderman Class 10 Initial at 4.

¹⁸²² Green Class 10 Initial at 2; *see also* Green Class 10 Pet. at 3.

¹⁸²³ CDT Class 10 Initial at 3–4.

¹⁸²⁴ Felten & Halderman Class 10 Initial at 7; Green Class 10 Initial at 1.

¹⁸²⁵ CDT Class 10 Initial at 2; *see also* Felton & Halderman Class 10 Initial at 7 (referring to “measures controlling installation, execution or use, measures controlling reading or inspection, and measures controlling modification”) (quoting 2015 Green Class 25 Initial at 5).

conducted with the authorization of the relevant copyright owner.”¹⁸²⁶ According to BSA, the same concern is applicable here. It also contends that “[p]roponents have presented no evidence to address the unique public safety risks and regulatory compliance considerations that would arise if the Device Limitation were eliminated.”¹⁸²⁷

The Acting Register does not find that these concerns weigh against the proposed expansion on the current record. As noted, the focus of the 2015 record was on consumer-facing devices, and there was little evidence speaking to the need for circumvention outside that context. Here, by contrast, proponents have offered substantial evidence of a legitimate need to access TPM-protected software on a broad range of additional devices and systems. They also have demonstrated that obtaining authorization of the copyright owner of the software may be infeasible for the same reason that applies to TPM-protected consumer devices—the owner may be unwilling to subject the program to independent testing.¹⁸²⁸

Nor does the Acting Register believe that public safety concerns provide an appropriate basis for denying this aspect of the proposal. As explained above, while such matters of course are of vital importance, they are within the competence of other agencies and generally are not among the factors considered as part of this rulemaking absent unusual circumstances. As CCIPS observes:

As critically important as the integrity of voting machines or the safety of motorized land vehicles are [to] the American public, the DMCA was not created to protect either interest, and is ill-suited to do so. To the extent such devices now contain copyrighted works protected by technological protection measures, the DMCA serves to protect those embedded works. However, the DMCA is not the sole nor even the primary legal protection preventing malicious tampering with such devices, or otherwise defining the contours of appropriate research.¹⁸²⁹

Following serious and novel concerns by DOT, FDA, and EPA in 2015, the current security research exemption was implemented with a twelve-month delay “to allow

¹⁸²⁶ BSA Class 10 Opp’n at 5–6 (quoting 2015 Recommendation at 306).

¹⁸²⁷ *Id.*

¹⁸²⁸ See Tr. at 131:22–132:01 (Apr. 10, 2018) (Reid, Felten/Halderman) (“The mere act of asking for permission might well be answered positively, but it might well be answered negatively.”); Tr. at 147:05–10 (Apr. 10, 2018) (Halderman, Univ. of Mich.) (“[I]f I sought permission to do such testing [on election software], I’m not sure it would be granted. In fact, my strong suspicion is that if a local government wanted to bring me in to do a security test of the voting machines from the makers represented here today, that those companies would object.”).

¹⁸²⁹ CCIPS Letter at 3.

other agencies with expertise in vehicle safety, environmental issues, and other relevant areas an opportunity to consider and react to the new rule.”¹⁸³⁰ The Copyright Office subsequently issued its Section 1201 Report, reiterating that “other agencies should not rely on section 1201 to help enforce or cover gaps in their own . . . regulations.”¹⁸³¹ Accordingly, the public safety risks or regulatory compliance considerations that BSA raises, while significant, are more properly addressed through other legal regimes, and thus do not provide grounds for denying the requested expansion.

Second, Election System Providers argue that proponents have failed to demonstrate an adverse effect on legitimate security research involving election software beyond that on voting machines. They note that such software “is distributed *only* to state and local governments” and that accessing a government’s computer systems without authorization may violate state and federal computer crime laws.¹⁸³² Any adverse effects on security research, they contend, are primarily caused by those physical and legal barriers, not by section 1201. Additionally, they argue that the security of election systems already is amply tested under current law and that comments supporting the proposal suggest a “[w]aning academic interest” in such research.¹⁸³³

The Acting Register likewise does not find these to be persuasive grounds for retaining the Device Limitation. The record indicates that local governments may have interest in retaining independent researchers to test the security of their voting systems.¹⁸³⁴ This suggests that researchers may well be able to access such systems without running afoul of computer crime laws. As to the academic value of additional work in this area, the Acting Register credits the views of the security researchers participating in this proceeding, who attest to its ongoing—indeed, increasing—significance.¹⁸³⁵ Moreover, it

¹⁸³⁰ 2015 Recommendation at 247 (with the exception of voting machines, for which the regulation was implemented immediately); see 37 C.F.R. § 201.40(b)(7) (2016).

¹⁸³¹ Section 1201 Report at 124–26 (also noting that it “does not anticipate . . . recommending additional delays for implementation of exemptions unless necessitated by a grave or unusual situation”).

¹⁸³² Election System Providers Class 10 Opp’n at 10.

¹⁸³³ *Id.* at 11–12.

¹⁸³⁴ Indeed, the Joint Security Researchers’ comment vividly describes the need for, and subsequent use of, the 2015 exemption for security research in voting systems particularly. See Joint Security Researchers Class 10 Reply; see also Tr. at 145:05–10 (Apr. 10, 2018) (Halderman, Univ. of Mich.) (“[T]here absolutely have been cases where local governments have wanted to conduct independent security testing on voting systems and have either been denied permission or have refrained from seeking permission because they were convinced it would be denied if sought.”).

¹⁸³⁵ For example, Professor Halderman testified:

is worth noting that observers have remarked on the 2015 exemption's value in enabling important research into the security of voting machines.¹⁸³⁶ As noted above, the Office received no opposition to renewal of the 2015 exemption for security research with respect to voting machines.

Based on the foregoing, the Acting Register agrees with proponents that the Device Limitation is likely to have an adverse effect on users' ability to engage in noninfringing security research.

Lawfully Acquired Limitation. Felten/Halderman contend that this requirement "brings into the ambit of Section 1201 enforcement disputes about the propriety of acquiring certain types of equipment."¹⁸³⁷ They offer an example of a vendor who sells a piece of equipment through a contract that purports to prohibit resale. If the original purchaser later sells the equipment to a security researcher, they assert, "the vendor might argue that the machine was unlawfully acquired, even though the security researcher had no knowledge or reason to know of the agreement between the vendor and the original purchaser."¹⁸³⁸ Similarly, Green suggests that the exemption should be "clarified by explaining that the existence of an 'End User License Agreement' or similar terms does not defeat a person's status as the owner of a copy of a computer program for purposes

[It] is getting all the more urgent to perform independent testing of voting systems. The Senate Intelligence Committee, which has been investigating interference in and hacking of election infrastructure, recommended just last month that states and local governments pursue security testing from the Department of Homeland Security for their election infrastructure.

And furthermore, because the Department of Homeland Security doesn't have the resources to test every local and state system in a timely way, the Senate Intelligence Committee . . . recommended the use of private security testing firms as well to perform that same kind of test.

Tr. at 145:14–146:02 (Halderman, Univ. of Mich.); *see also* Felten, Halderman & CDT Class 10 Reply at 15 ("[V]ulnerabilities in software, including election software, are still present and are under-researched because of the chilling effects of Section 1201.").

¹⁸³⁶ *See, e.g.,* Kevin Roose, *A Solution to Hackers? More Hackers*, N.Y. TIMES (Aug. 2, 2017), <https://www.nytimes.com/2017/08/02/technology/a-solution-to-hackers-more-hackers.html> ("The reason Def Con was able to test them at all is a 2015 exemption to the Digital Millennium Copyright Act that gave researchers a temporary pass to experiment on voting machines. Now that white-hat hackers have found flaws in these machines, they can pass that knowledge on to the manufacturers and election officials, who can secure the machines ahead of the next election cycle.") (parentheses omitted).

¹⁸³⁷ Felten & Halderman Class 10 Initial at 23.

¹⁸³⁸ *Id.*

of the exemption when the person owns the physical medium that embodies the computer program.”¹⁸³⁹

The Acting Register is not convinced that this provision risks chilling good-faith research. There is no indication in the record that any disputes of the type described by proponents have arisen, and speculation alone is insufficient to demonstrate a likely adverse effect.¹⁸⁴⁰ Furthermore, the Acting Register does not believe the language to be ambiguous: it does not require that the circumventing party be the lawful owner of the device—or the software embedded within the device—only that the device be lawfully acquired. In any event, to avoid uncertainty, the Acting Register now makes clear her understanding that the phrase “lawfully acquired” requires only that the acquisition not be in violation of law. The Acting Register thus agrees with CCIPS that eligibility for the exemption “should not turn on restrictive contractual terms purporting to limit use of the hardware on which the copyrighted software is running.”¹⁸⁴¹ The Acting Register believes this guidance obviates any need for amending the regulatory text.

A related issue involves situations in which a researcher seeks to investigate large-scale infrastructure such as a building automation system—activity that would be permitted if the Device Limitation is removed. The “lawfully acquired” concept is ill-suited to research involving these larger systems.¹⁸⁴² A question, then, is whether an expanded exemption should require authorization of the owner or operator of the system (as distinguished from the owner of the copyright in the software).

As discussed, proponents testified that their practice is to obtain advance permission of the building or system owner in such circumstances.¹⁸⁴³ The one example they provide of an actual project in which authorization is impracticable is “internet-wide scanning,” which they describe as “making small numbers of harmless connection attempts to publicly accessible computers. . . . Internet-wide scanning may also consist of standard connection attempts followed by RFC-compliant protocol handshakes with responsive hosts.”¹⁸⁴⁴ It is not clear, however, that an exemption from section 1201 is necessary to accommodate this type of research. The record does not establish whether these connection attempts or protocol handshakes involve circumvention of TPMs or accessing copyrightable works. Professor Halderman’s testimony was speculative on those issues, suggesting only that such a handshake “might be construed as violating an

¹⁸³⁹ Green Class 10 Pet. at 2.

¹⁸⁴⁰ See Section 1201 Report at 28; 2012 Recommendation at 8.

¹⁸⁴¹ CCIPS Letter at 5.

¹⁸⁴² See Felten, Halderman & CDT Class 10 Reply at 21.

¹⁸⁴³ See Tr. at 112:19–113:13 (Apr. 10, 2018) (Walsh, Green); Tr. at 122:04–08 (Apr. 10, 2018) (Reid, Felten/Halderman); Tr. at 133:07–13 (Apr. 10, 2018) (Halderman, Univ. of Mich.).

¹⁸⁴⁴ Felten & Halderman Class 10 Initial at 38 (statement of Professors Felten and Halderman).

access control mechanism.”¹⁸⁴⁵ This evidence is insufficient to demonstrate that researchers would be unduly burdened by a requirement that they obtain permission from the relevant system owner or operator in situations where their research involves structures that cannot be “acquired.”¹⁸⁴⁶

Given this record, the Acting Register believes that any exemption authorizing this activity should require such authorization. Such a requirement is consistent with congressional intent as reflected in the permanent exemption for security testing under section 1201(j), which is conditioned upon the user obtaining “the authorization of the owner or operator of [the] computer, computer system, or computer network” that will be accessed.¹⁸⁴⁷ It also accords with the legislative history, which explains:

[T]he scope of permissible security testing under the Act should be the same as permissible testing of a simple door lock: a prospective buyer may test the lock at the store with the store’s consent, or may purchase the lock and test it at home in any manner that her or she sees fit What the person may not do, however, is test the lock once it has been installed on someone else’s door, without the consent of the person whose property is protected by the lock.¹⁸⁴⁸

In accordance with these statements, the Acting Register finds it appropriate to include language similar to that of section 1201(j) in any exemption involving research on systems of this type.

Access Limitation. Proponents argue that the two references to “solely” in the current text—the requirement that circumvention be “solely” for the purpose of good-faith security research, and the definition of such research as accessing a program “solely” for purposes of good-faith testing, investigation, and/or correction—potentially limit “post-circumvention First-Amendment-protected speech.”¹⁸⁴⁹ Specifically, they argue that “[t]he word ‘solely’ does not clarify whether activities that use the results of the noninfringing testing and investigation—for example, publishing papers—are

¹⁸⁴⁵ Tr. at 130:15–22 (Apr. 10, 2018) (Halderman, Univ. of Mich.).

¹⁸⁴⁶ At the hearing, Professor Halderman also described measurements involving “the cellphones in this room or the wi-fi devices in a neighborhood.” Tr. at 133:20–24 (Apr. 10, 2018) (Halderman, Univ. of Mich.). It was unclear, however, whether those examples refer to actual projects security researchers wish to undertake or are simply hypotheticals. Nor does the testimony establish whether such activity would require circumvention of TPMs controlling access to copyrighted works.

¹⁸⁴⁷ 17 U.S.C. § 1201(j)(1).

¹⁸⁴⁸ Conference Report at 67.

¹⁸⁴⁹ Felten & Halderman Class 10 Initial at 24.

covered.”¹⁸⁵⁰ They cite “scientific dialogue, academic peer review, and classroom teaching” as additional examples of speech that could be implicated.¹⁸⁵¹

Opponents disagree that removal of these provisions is necessary or advisable. BSA and Election System Providers contest proponents’ reading of the regulatory language, arguing that it does not limit discussion of good-faith research results. As BSA sees it, “[p]rovided an initial act of circumvention is performed ‘solely for purposes of good-faith testing, investigation, and/or correction of a security flaw or vulnerability,’ a beneficiary is free to use insights gleaned from the research for ‘scientific dialogue, academic peer review, and classroom teaching.’”¹⁸⁵² Other opponents object on the ground that removal of “solely” would leave the exemption ill-defined and could “open the door . . . to a host of other purposes” going beyond teaching and scholarship.¹⁸⁵³

The Acting Register agrees with opponents that the Access Limitation is not properly read to prohibit teaching, academic dialogue, or scholarship involving information derived from good-faith security research. In the 2015 Recommendation, the Register expressly found that the exemption was “likely to increase the use of works in educational settings” and that “teaching and scholarship would be enhanced” by it.¹⁸⁵⁴ She also noted that “[t]he desired research activities may result in criticism or comment about [a] work and the devices in which it is incorporated, including potential flaws and vulnerabilities.”¹⁸⁵⁵ As those findings recognize, the focus of the Access Limitation is the researcher’s purpose at the time of circumvention. While post-circumvention activities

¹⁸⁵⁰ *Id.* at 25; *see also* CDT Class 10 Initial at 4 (“Under these requirements, it is unclear whether academic research and open public discussion of vulnerabilities fall within the exemption, placing legal constraints on the study and prevention of critical flaws.”); Green Class 10 Reply at 3.

¹⁸⁵¹ Felten & Halderman Class 10 Initial at 25.

¹⁸⁵² BSA Class 10 Opp’n at 3; *accord* Election System Providers Class 10 Opp’n at 15 (“Nothing in the current regulation seems to prohibit teaching based on the results of what was in the first instance good-faith security research, scientific dialogue concerning such research or its results, or academic peer review of such results.”).

¹⁸⁵³ Auto Alliance Class 10 Opp’n at 11–12; *see also* Election System Providers Class 10 Opp’n at 15 (“[T]he proponents propose expanding the exemption to allow circumvention almost without regard to its purpose. For example, in the case of election systems, it would not be in the interests of the United States to open this exemption to a researcher motivated to some extent by a ‘research’ interest but also motivated by a desire to help a foreign adversary interfere in U.S. elections.”); Joint Creators II at 10–11 (“[T]here is nothing wrong with the Register attempting to ensure that security research cannot become a back door to enable unauthorized access to works and other harmful acts.”).

¹⁸⁵⁴ 2015 Recommendation at 310–11.

¹⁸⁵⁵ *Id.* at 300.

might be relevant to the extent they provide evidence on that issue, a researcher who at the time of circumvention intends to publish the results of good-faith research or use them in the course of teaching would not exceed the bounds of the Access Limitation. Such activities ordinarily are expected to follow from research, and therefore they easily fit within the meaning of the regulatory language when read in its proper context. The Acting Register accordingly concludes that this requirement is unlikely to have an adverse effect on good-faith research, and therefore she does not recommend its removal.

Controlled Environment Limitation. Proponents contend that this provision impedes legitimate research “because it is ambiguous and it is limiting.”¹⁸⁵⁶ It is ambiguous, they argue, because it does not indicate whether, or to what extent, it permits research conducted outside a laboratory.¹⁸⁵⁷ It is limiting, in their view, because it prevents research in the field, where “the environment is purposefully uncontrolled” so that researchers can “measure variations caused by undetected sources, clarify causation from correlation, improve reliability, and perform verification.”¹⁸⁵⁸ They cite building automation systems and voting machines as examples of systems that must be tested in “real-world environments.”¹⁸⁵⁹ As noted, proponents emphasize that this activity would be designed so as not to expose the public to harm and would not occur in “live” settings such as an actual election.¹⁸⁶⁰

Opponents raise several points in opposition to removal of this limitation. First, they note that in 2015 the Register recommended the “controlled environment” language based on her finding that “there appeared to be universal agreement among proponents that testing in ‘live’ conditions—such as cars being driven on public roads—is wholly inappropriate.”¹⁸⁶¹ In their view, proponents’ request “is directly at odds with the position *all* participants took in the last proceeding, including some of the same individuals providing comments in this proceeding.”¹⁸⁶² Second, they contend that

¹⁸⁵⁶ Felten & Halderman Class 10 Initial at 38 (statement of Professors Felten and Halderman).

¹⁸⁵⁷ *Id.*

¹⁸⁵⁸ *Id.*

¹⁸⁵⁹ *Id.* at 39 (statement of Professors Felten and Halderman).

¹⁸⁶⁰ *See id.* at 38–39 (statement of Professors Felten and Halderman); Felten, Halderman & CDT Class 10 Reply at 17 (distinguishing “live” testing from “testing in real-life environments carefully designed to avoid harm”).

¹⁸⁶¹ 2015 Recommendation at 318.

¹⁸⁶² Election System Providers Class 10 Opp’n at 13; *accord* Auto Alliance Class 10 Opp’n at 13; Joint Creators II Class 10 Opp’n at 8.

eliminating this requirement would pose risks to public safety and security.¹⁸⁶³ They point out that one of the parties supporting other aspects of the proposed expansion, Consumers Union, opines in its comments that the Controlled Environment Limitation “may be particularly important for ensuring safety and security” and that “[a]ny adjustments to this condition should be made only after thorough consideration, and should be carefully and specifically circumscribed.”¹⁸⁶⁴ Finally, BSA and Joint Creators II argue that proponents’ concerns are unwarranted because the current language does not prohibit research outside a lab but requires only that researchers exercise reasonable care in performing their work.¹⁸⁶⁵

The Acting Register continues to believe it is appropriate for the exemption to include “common-sense limitations” to reflect the parties’ understanding that good-faith research does not include activities that threaten safety and security.¹⁸⁶⁶ At the same time, proponents have stated a plausible concern that the phrase “controlled environment” potentially could be read to require that the research take place in a lab-like setting. The existing rule was not intended to impose such a requirement, and the Acting Register does not understand proponents’ suggested reading to be correct, particularly given that the 2015 Recommendation makes no reference to any such limitation. Nevertheless, proponents have introduced evidence that uncertainty over the meaning of the language has caused researchers to avoid particular projects.¹⁸⁶⁷ Moreover, the Acting Register again credits the views of CCIPS, which advises that “in some cases, minimizing the risk of harm may require ‘real world’ testing outside of a lab-like controlled environment.”¹⁸⁶⁸ CCIPS therefore suggests that “it would beneficial

¹⁸⁶³ See Auto Alliance Class 10 Opp’n at 14 (“The Controlled Environment Limitation very sensibly precludes real-time research on cars that are on public roads, where innocent third parties may be exposed to serious risks of damage, injury or death.”); Election System Providers Class 10 Opp’n at 13–14 (“[T]ampering with election systems during an election would undermine the democratic principles the proponents profess to uphold and violate the law in many states.”); Joint Creators II Class 10 Opp’n at 8 (“[O]pening up the exemption to include ‘real-life environments’ would potentially harm the very individuals the researchers claim they seek to protect.”).

¹⁸⁶⁴ Consumers Union Class 10 Initial at 3.

¹⁸⁶⁵ BSA Class 10 Opp’n at 5 (“For purposes of the 2015 Exemption, ‘controlled environment’ should be understood as encompassing testing environments where ‘harm to individuals or the public’ can be mitigated.”); Joint Creators II Class 10 Opp’n at 8 (“The ‘controlled environment’ language simply requires responsible research practices.”).

¹⁸⁶⁶ 2015 Recommendation at 318.

¹⁸⁶⁷ See Felten & Halderman Class 10 Initial at 38 (statement of Professors Felten and Halderman) (“Because the controlled environment limitation is unclear as to what a controlled environment is, we often avoid necessary research that may implicate unknown aspects.”).

¹⁸⁶⁸ CCIPS Letter at 5.

to clarify that, although exempted security research need not always be conducted in a laboratory setting, it must be conducted with reasonable consideration for risks of harm, or under conditions reasonably calculated to minimize risks to the public.”¹⁸⁶⁹ The Acting Register believes that this can be accomplished by deleting the word “controlled,” so that the exemption simply would require the activity to be “carried out in an environment designed to avoid any harm to individuals or the public.” This alteration would resolve the ambiguity cited by proponents, while continuing to provide appropriate accommodation for public safety. The Acting Register understands this to be a technical clarification, rather than a substantive change.

Use Limitation. The definition of “good-faith security research” requires that “the information derived from the activity is used primarily to promote the security or safety of the class of devices or machines on which the computer program operates, or those who use such devices or machines, and is not used or maintained in a manner that facilitates copyright infringement.”¹⁸⁷⁰ Proponents argue that this provision is ambiguous in three ways. First, they assert that the term “primarily” could be read to mean “‘only’—such that if a researcher is found to have used the information for anything that is beyond the given uses, they have violated this term.”¹⁸⁷¹ Second, they contend that the phrase “promote the security or safety of the class of devices . . . or those who use such devices” could be read to exclude using the information to “dissuade consumers from using a vulnerable device that cannot be made safe or secure,” since the goal of such disclosure is to “ensur[e] that *no one* uses a device.”¹⁸⁷² Third, they argue that the limitation “makes the circumventor liable if someone else uses the information they derived to commit copyright infringement.”¹⁸⁷³

Opponents’ responses are similar to those they advance regarding the other challenged limitations. They contend that proponents’ concerns are premised on a misreading of the exemption language.¹⁸⁷⁴ And they argue that weakening these provisions could result in disclosures that would harm the public.¹⁸⁷⁵

¹⁸⁶⁹ *Id.*

¹⁸⁷⁰ 37 C.F.R. § 201.40(b)(7)(ii) (2016).

¹⁸⁷¹ Felten & Halderman Class 10 Initial at 25; *see also* CDT Class 10 Initial at 5.

¹⁸⁷² Felten & Halderman Class 10 Initial at 25.

¹⁸⁷³ *Id.* at 26; *accord* CDT Class 10 Initial at 5.

¹⁸⁷⁴ *See* Auto Alliance Class 10 Opp’n at 15–16 (“As long as the beneficiary of the exemption uses the research information derived from circumvention in accordance with the Use Limitation (i.e., to promote safety and security), then liability will not attach.”); BSA Class 10 Opp’n at 4 (“We disagree with the fundamental premise of Petitioners’ argument, namely, that ‘primarily’ might be interpreted to mean ‘only.’”); Joint Creators II Class 10 Opp’n at 11 (“The researchers are not responsible for what others do. The exemption simply holds researchers responsible for handing

The Acting Register finds no realistic likelihood of adverse effects based on proponents' first two arguments. First, it is not plausible to conclude that the term "primarily" could be interpreted to mean "only." Those two terms clearly are not synonymous, and nothing in the record suggests that any copyright holder has advanced such a reading. Likewise, proponents' concern that the exemption might not extend to situations in which a researcher advises against the use of a device seems farfetched. It would be absurd to construe the exemption to mean that research is protected only if it results in users being able to use the class of devices whose security or safety is being examined.

Proponents' concern about liability turning on the acts of third parties is somewhat more understandable given the exemption's requirement that the information "*is not used or maintained* in a manner that facilitates copyright infringement."¹⁸⁷⁶ The Acting Register nevertheless does not believe removal of this provision to be advisable. In 2015 the Register recommended adoption of this language—which tracks the statutory factors governing eligibility for the security testing exemption under section 1201(j)¹⁸⁷⁷—because she determined that it reflected congressional intent regarding appropriate disclosure requirements in this context.¹⁸⁷⁸ The Acting Register adheres to that view. Nevertheless, to address proponents' concern, the Acting Register now clarifies her understanding that this language refers to the researcher's own use and maintenance of the information derived from the research. Whether a researcher's use or maintenance of information has facilitated copyright infringement by a third party should be determined according to the standards governing secondary copyright liability.¹⁸⁷⁹ Thus, evidence of third-party infringement is relevant to a researcher's eligibility for the exemption only insofar

their own results with care to prevent others from misusing them to the extent feasible."); SIIA Class 10 Opp'n at 5 ("We are aware of no case that would prevent petitioners from being able to 'inform consumers that the system is insecure so they can protect themselves.'") (quoting Felten & Halderman Class 10 Initial at 40 (statement of Professors Felten and Halderman)).

¹⁸⁷⁵ See Auto Alliance Class 10 Opp'n at 15 ("When researchers choose to publish detailed analyses of vulnerabilities before communicating their findings to system operators or developers . . . they are informing bad actors as well as the general public."); Election System Providers Class 10 Opp'n at 15 ("With respect to election systems, disclosure that is primarily for purposes other than promoting security cannot be justified. The negative consequences of an uncoordinated disclosure of an election-related security vulnerability could be great.").

¹⁸⁷⁶ 37 C.F.R. § 201.40(b)(7)(ii) (2016) (emphasis added).

¹⁸⁷⁷ See 17 U.S.C. § 1201(j)(3).

¹⁸⁷⁸ See 2015 Recommendation at 318–19.

¹⁸⁷⁹ See *MGM Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913 (2005).

as it supports a finding that the researcher's use or maintenance of information constitutes contributory or vicarious infringement, or inducement of infringement.¹⁸⁸⁰

In light of this clarification, the Acting Register does not believe that the Use Limitation is likely to cause an adverse effect on noninfringing security research.

Other Laws Limitation. Proponents contend that the requirement that the circumvention "not violate any applicable law" adversely affects their activities because "[s]ecurity research can implicate numerous federal and state regulations, with legal uncertainty and uneven application in different jurisdictions."¹⁸⁸¹ In their view, "those complexities should be sorted out in other contexts without importing the DMCA's significant penalties."¹⁸⁸² Proponents specifically note that the CFAA has not been construed uniformly by courts, and they argue that that uncertainty should not be incorporated into the exemption.¹⁸⁸³ They further stress that removal of this condition would not eliminate researchers' obligation to comply with other applicable laws.¹⁸⁸⁴

Opponents respond that proponents' concern is misplaced because any uncertainty as to their compliance with other legal requirements is the product of ambiguities in those laws, not the exemption language.¹⁸⁸⁵ In particular, Auto Alliance and SIIA argue that, to the extent researchers' conduct is barred by other laws, they cannot meet their statutory burden to show that section 1201 is the cause of any adverse effect.¹⁸⁸⁶ Opponents also

¹⁸⁸⁰ Proponents Rapid7 et al. offered a proposal that would (1) add a second "primarily" before the clause regarding facilitation of infringement and (2) change "in a manner that facilitates" to "for the purpose of facilitating." The amended language would read "where the information derived from the activity . . . is not **primarily** used or maintained **for the purpose of facilitating** copyright infringement." See Rapid7 et al. Class 10 Initial at 3 (bolding added). The Acting Register does not recommend this change. The proposal appears to assume that "used or maintained" refers to the way in which third parties—as opposed to the researcher—uses or maintains the information. As discussed, that is not the Acting Register's understanding. Moreover, the change would seem to allow circumvention where the researcher uses or maintains the information for the purpose of facilitating infringement, so long as that is not his or her primary purpose.

¹⁸⁸¹ Rapid7 et al. Class 10 Initial at 2; *see also* CDT Class 10 Initial at 4; Felten & Halderman Class 10 Initial at 5.

¹⁸⁸² Felten & Halderman Class 10 Initial at 24.

¹⁸⁸³ Felten, Halderman & CDT Class 10 Reply at 23; Rapid7 et al. Class 10 Initial at 2.

¹⁸⁸⁴ Felten & Halderman Class 10 Initial at 24; Rapid7 et al. Class 10 Initial at 2.

¹⁸⁸⁵ Auto Alliance Class 10 Opp'n at 12.

¹⁸⁸⁶ *Id.* at 13 ("Since this proceeding is solely concerned with adverse impacts arising 'by virtue of [the] prohibition' contained in 17 [U.S.C.] § 1201(a)(1)(A), any impacts attributable to other laws are completely irrelevant."); SIIA Class 10 Opp'n at 4 ("[I]f the CFAA (or a similar statute) prevents certain activity, then 1201 does not cause the adverse effect as a matter of law.").

note that removing this provision would be inconsistent with congressional intent given that Congress included the same requirement in section 1201(j).¹⁸⁸⁷

In its letter, CCIPS notes that it “does not view the anti-circumvention provisions as the most appropriate or efficient means of imposing limits on security research” beyond the scope of copyright concerns, and therefore “would not object to the removal of [the Other Laws Limitation] from the exemption, were it standing alone.”¹⁸⁸⁸ It concluded, however, that

[g]iven the interplay and occasionally overlapping application of the DMCA and the CFAA, CCIPS cannot support removal of the reference to the CFAA in the Class 10 exemption. To do so might mislead researchers into believing that operating within the DMCA exemption would also provide an exemption from CFAA liability, which it does not. To avoid confusion that could place security researchers in legal jeopardy, we support retaining the express reference to the CFAA within the exemption.¹⁸⁸⁹

Taking all of these considerations into account, the Acting Register concludes that proponents have failed to establish an adverse effect resulting from this provision. As the Office recently noted in the context of section 1201(j), “it [is] not clear . . . that the requirement to comply with other laws impedes legitimate security research; other laws still apply even if the activity is permitted under section 1201.”¹⁸⁹⁰ Nor did proponents offer a persuasive response to opponents’ contention that section 1201 is not the cause of any adverse effect when circumvention is prohibited by other laws. In addition, the Acting Register finds it significant that Congress included an obligation to comply with other laws in the statutory provision speaking most directly to the activity at issue here.¹⁸⁹¹ While the proposed exemption does differ from the statute in various respects, the Acting Register believes it appropriate to track the statutory language to the extent possible, “in the interest of adhering to Congress’s basic purpose in section 1201(j).”¹⁸⁹² Finally, the Acting Register takes seriously CCIPS’s concerns regarding the relationship between section 1201 and the CFAA. The Acting Register accordingly does not recommend removal of the Other Laws Limitation.

¹⁸⁸⁷ See BSA Class 10 Opp’n at 6; Joint Creators II Class 10 Opp’n at 10.

¹⁸⁸⁸ CCIPS Letter at 5.

¹⁸⁸⁹ *Id.*

¹⁸⁹⁰ Section 1201 Report at 80.

¹⁸⁹¹ See 17 U.S.C. § 1201(j)(2); see also *id.* § 1201(g)(2)(D) (same for encryption research exemption).

¹⁸⁹² 2015 Recommendation at 319.

ii. Statutory Factors

The application of the first four statutory factors to the proposed expansion is substantially the same as the analysis in 2015.¹⁸⁹³ For the first factor, the record again supports the conclusion that granting the exemption would increase the availability of copyrighted works in the form of articles, presentations, and computer programs aimed at rectifying security flaws. By enabling research on a wider range of devices, the removal of the Device Limitation would broaden the universe of programs upon which such works may be based.¹⁸⁹⁴ The second and third factors likewise support the exemption, as the record indicates that it would increase the availability of computer programs in educational settings and for criticism, comment, news reporting, teaching, scholarship, and research. Proponents have established that the Device and Controlled Environment Limitations have prevented researchers from undertaking research projects outside the scope of the current exemption, and that they have deterred researchers from involving students in projects that could expose them to legal risk.¹⁸⁹⁵ As to the fourth factor, the Acting Register finds that granting the expansion, while retaining the other limitations discussed, is unlikely to adversely affect the market for or value of copyrighted computer programs, for the same reasons stated above in reference to the fourth fair use factor.

With respect to the fifth factor, the Acting Register does not find that the concerns underlying the decision to delay implementation of the 2015 exemption are present on the current record. As discussed, that decision was intended to provide other federal agencies that had expressed concern over the proposal the opportunity to consider any potential impacts on matters within their regulatory jurisdictions.¹⁸⁹⁶ The Office subsequently made clear that, with those agencies now having had time to respond, it “will generally decline to consider health, safety, and environmental concerns” as part of the rulemaking.¹⁸⁹⁷ Here, only one other agency, CCIPS, has provided views on the proposed exemption, and it recommends changes consistent with the Acting Register’s conclusions. The Acting Register accordingly does not find that any additional factors weigh against granting the exemption.

Based on the foregoing, the Acting Register concludes that proponents have satisfied their burden to show that the Device Limitation and the term “controlled” in the Controlled Environment Limitation are causing an adverse effect on users’ ability to engage in noninfringing security research, or are likely to cause such an adverse effect

¹⁸⁹³ See *id.* at 310–11.

¹⁸⁹⁴ See Felten & Halderman Class 10 Initial at 27.

¹⁸⁹⁵ *Id.* at 37–39 (statement of Professors Felten and Halderman).

¹⁸⁹⁶ See 2015 Recommendation at 317–18.

¹⁸⁹⁷ Section 1201 Report at 125–26.

during the next three years. The Acting Register does not find any actual or likely adverse effect resulting from the other limitations challenged by proponents.

3. NTIA Comments

NTIA recommends granting the proposed expansion and proposes the same regulatory text it offered in 2015.¹⁸⁹⁸ That language would allow circumvention “in order to conduct good faith security research” on computer programs, “regardless of the device on which they are run.”¹⁸⁹⁹ NTIA concludes that “proponents have provided enough evidence regarding a range of devices to warrant removal of the device limitation,” and it agrees with CCIPS regarding the value of legitimate security research on large-scale computer systems.¹⁹⁰⁰ NTIA further recommends that the Other Laws Limitation be replaced with a statement that the exemption “does not obviate the need to comply with [all] other applicable laws and regulations.”¹⁹⁰¹ It acknowledges that CCIPS supports retaining the exemption’s express reference to the CFAA, but concludes that its proposed amendment “would be less of an obstacle to good-faith security researchers (while maintaining a reasonable note of caution).”¹⁹⁰² For the reasons discussed above, however, the Acting Register recommends retaining the Other Laws Limitation.

In addition, NTIA recommends removal of the Controlled Environment, Access, and Use Limitations, largely agreeing with proponents that those provisions may chill legitimate research.¹⁹⁰³ The Acting Register recognizes the importance of providing clear legal direction to researchers in this area. As discussed, however, she concludes that the interpretive guidance offered above and the technical correction to the Controlled Environment Limitation are sufficient to address proponents’ concerns.

4. Conclusion and Recommendation

The Acting Register accordingly recommends expanding the current security research exemption in accordance with the above discussion. First, the recommended exemption removes the Device Limitation. Second, it includes a provision allowing circumvention to be undertaken on a “computer, computer system, or computer network on which the computer program operates.” This language is based on the text of section 1201(j)(1) and is intended to address situations in which a researcher seeks access to a structure, such as a building automation system, that cannot be “acquired” in the sense of

¹⁸⁹⁸ See NTIA Letter at 83–84; NTIA 2015 Letter at 89.

¹⁸⁹⁹ NTIA Letter at 84.

¹⁹⁰⁰ *Id.* at 77.

¹⁹⁰¹ *Id.* at 79 & n.401.

¹⁹⁰² *Id.* at 79 & n.402.

¹⁹⁰³ *Id.* at 77–81.

obtaining physical possession of it, in contrast to instances where the researcher can lawfully acquire a device or machine. The exemption requires that circumvention in these circumstances be undertaken “with the authorization of the owner or operator of such computer, computer system, or computer network.” This language likewise is drawn from section 1201(j)(1). Finally, the recommendation removes the term “controlled” from the language addressing public safety considerations. Accordingly, the Acting Register recommends that the Librarian designate the following class:

(i) Computer programs, where the circumvention is undertaken on a lawfully acquired device or machine on which the computer program operates, or is undertaken on a computer, computer system, or computer network on which the computer program operates with the authorization of the owner or operator of such computer, computer system, or computer network, solely for the purpose of good-faith security research and does not violate any applicable law, including without limitation the Computer Fraud and Abuse Act of 1986.

(ii) For purposes of this paragraph (b)(11), “good-faith security research” means accessing a computer program solely for purposes of good-faith testing, investigation, and/or correction of a security flaw or vulnerability, where such activity is carried out in an environment designed to avoid any harm to individuals or the public, and where the information derived from the activity is used primarily to promote the security or safety of the class of devices or machines on which the computer program operates, or those who use such devices or machines, and is not used or maintained in a manner that facilitates copyright infringement.

K. Proposed Class 11: Computer Programs—Avionics

1. Background

a. Summary of Proposed Exemption

Petitioner Air Informatics LLC requests an exemption to permit circumvention of access controls on electronic systems used in aircraft, *i.e.*, avionics, to enable access to “aircraft flight, operations, maintenance and security” bulk data collected by third parties “upon authorization of the aircraft owner or operator” in the course of complying with FAA standards, rules, and regulations.¹⁹⁰⁴ Air Informatics stipulates that its request to access “bulk data, in the form of files and logs” does not encompass modification of the

¹⁹⁰⁴ Air Informatics LLC (“AI”) Class 11 Pet. at 2. Air Informatics did not propose specific regulatory language for this exemption.

“software embedded in the avionics components,” which is “under the strict control and certification by the FAA and not allowed.”¹⁹⁰⁵ Air Informatics further explains that the circumvention and subsequent analysis would be “conducted in a controlled setting such as in an office or data management environment” and that “[t]he data would not be exposed in any real time flight operations setting.”¹⁹⁰⁶ In addition to Air Informatics, FSF and Public Knowledge filed comments supporting the proposed exemption, which was unopposed.

b. Overview of Issues

This exemption request comes as aircraft are increasingly equipped with technology to monitor all aspects of plane operations. As Air Informatics explains, “[c]ore to these aircraft is an integrated centralized computerized flight system[] interconnecting the control and information avionics subsystems of the aircraft.”¹⁹⁰⁷ The data collected by these systems include information regarding “flight operations, fuel economy, digital flight data recorder, maintenance, fault and information security.”¹⁹⁰⁸

Due to reliance upon these electronic systems, aircraft “operators have faced a . . . rise in the complexity and scope of work needed to keep their fleet secure and operating efficiently.”¹⁹⁰⁹ In response, the FAA “has mandated the review of the data, information, logs[,] and other information [by aircraft owners or operators] as a means to ensure safety, security[,] and regulatory compliance.”¹⁹¹⁰

According to proponents, however, access to this information is controlled by manufacturers of the digital systems, such as General Electric and Honeywell.¹⁹¹¹ Specifically, the data are first collected in a folder, compressed, and encrypted, then transferred to the aircraft owner, maintainer, or operator utilizing a public key infrastructure process.¹⁹¹² The data “transfer is completed by an 802.11 secure

¹⁹⁰⁵ AI Class 11 Initial at 3.

¹⁹⁰⁶ *Id.*

¹⁹⁰⁷ *Id.* at 1–2.

¹⁹⁰⁸ *Id.* at 2.

¹⁹⁰⁹ Public Knowledge 11 Initial at 1.

¹⁹¹⁰ AI Class 11 Initial at 3; *see also* Public Knowledge Class 11 Initial at 1–2; Tr. at 131:01–05 (Apr. 25, 2018) (Jackson, AI).

¹⁹¹¹ Public Knowledge Class 11 Initial at 5; *see also* AI Class 11 Pet. at 2 (“The DMCA has been used in the Aviation Industry to prevent access to aircraft flight, operations, maintenance and cyber security data to all by the manufacturers of the avionics equipment collecting the data from an aircraft, or prevent access to third parties without payment of a licensing or analysis fee.”).

¹⁹¹² AI Class 11 Initial at 2.

connection, typically using [Wi-Fi Protected Access II] security protocol.”¹⁹¹³ Proponents argue that systems manufacturers “use TPMs and threats of legal action under § 1201 to prevent operators from [otherwise] accessing the data and reports.”¹⁹¹⁴ Aircraft owners or operators, therefore, must pay manufacturers for access to the aircraft data to ensure compliance with FAA rules and regulations.¹⁹¹⁵

2. Discussion

a. Works Protected by Copyright

Section 1201’s prohibition against circumventing TPMs applies only to “work[s] protected under [title 17],” meaning works protected by copyright.¹⁹¹⁶ Thus, uncopyrightable materials fall outside the ambit of this rulemaking.¹⁹¹⁷ In such cases, “the prohibition on circumvention will not be applicable” as “any protection measures on such a work do not implicate section 1201(a)(1),” and an exemption is unnecessary.¹⁹¹⁸

Here, the record suggests that the data collected by aircrafts at issue consist of facts. According to Air Informatics, the information represents objective details about aircraft, including “flight operations, fuel economy, digital flight data recorder, maintenance, fault and information security.”¹⁹¹⁹ Public Knowledge states more bluntly that “Air Informatics seeks access to data inputs and outputs which are not classifiable as a ‘work’ protected under Title 17” and alleges that such “access does not implicate any colorable copyright concerns.”¹⁹²⁰ As such, the factual data are not copyrightable.¹⁹²¹

Thus, to be protected by copyright, that information must involve a “collection and assembling of . . . data that are selected, coordinated, or arranged in such a way that the

¹⁹¹³ *Id.*

¹⁹¹⁴ Public Knowledge Class 11 Initial at 2; *see also* AI Class 11 Pet. at 2.

¹⁹¹⁵ Public Knowledge Class 11 Initial at 2.

¹⁹¹⁶ 17 U.S.C. § 1201(a)(1).

¹⁹¹⁷ *See* 2003 Recommendation at 99–102 (declining to recommend exemption to circumvent TPMs on works that are entirely in the public domain).

¹⁹¹⁸ 2003 Recommendation at 99.

¹⁹¹⁹ AI Class 11 Initial at 2; *see also* Tr. 146:01–02 (Apr. 25, 2018) (Jackson, AI) (describing the data as including “altitude, pressure, temperature, speed, how the airplane is flown, [and] control services inputs”).

¹⁹²⁰ Public Knowledge Class 11 Initial at 2.

¹⁹²¹ *See* 17 U.S.C. § 102(b); *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 344 (1991) (“That there can be no valid copyright in facts is universally understood.”); *Harper & Row*, 471 U.S. 539 at 556 (“No author may copyright his ideas or the facts he narrates.”).

resulting work as a whole constitutes an original work of authorship.”¹⁹²² But Public Knowledge asserts that the outputs “are formatted and compiled in accordance with an industry-wide standard, and thus such compilations do not involve any meaningful form of creativity that would qualify them for copyright protection.”¹⁹²³ Mr. Jackson of Air Informatics confirms, stating that “how that data might be formatted is by an industry-based standard.”¹⁹²⁴ Specifically, he testified that the relevant standard was developed by Aeronautical Radio, Inc. (or “ARINC”) via a committee composed of operators and is now maintained by a unit of the Society of Automotive Engineers through “committees that define standards for . . . the format of data in this particular case.”¹⁹²⁵

Based on the record, the collected information would not qualify as a compilation, because it is organized in a way typical to the avionics industry.¹⁹²⁶ The Acting Register concludes that proponents have not alleged that the data or data compilations they are seeking to access are copyrightable. Mr. Jackson raises some notable concerns regarding attempts by airplane manufacturers to control the aftermarket for the data in security research and analytics, but it is not clear that section 1201 is facilitating those actions.¹⁹²⁷ Accordingly, it is not necessary to proceed to consider whether proponents have demonstrated an adverse effect on a noninfringing use of a particular class of copyrighted works.¹⁹²⁸

¹⁹²² 17 U.S.C. § 101 (defining “compilation”); see also *Feist*, 499 U.S. at 348 (stating that a compilation of facts may be copyrightable where “it features an original selection or arrangement”).

¹⁹²³ Public Knowledge Class 11 Initial at 3.

¹⁹²⁴ Tr. at 132:09–10 (Apr. 25, 2018) (Jackson, AI).

¹⁹²⁵ Tr. at 146:11–22 (Apr. 25, 2018) (Jackson, AI).

¹⁹²⁶ See *Feist*, 499 U.S. at 363 (“[T]here is nothing remotely creative about arranging names alphabetically in a white pages directory. It is an age-old practice, firmly rooted in tradition and so commonplace that it has come to be expected as a matter of course.”); *Matthew Bender & Co., Inc. v. West Publ’g Co.*, 158 F.3d 674, 682 (2d Cir. 1998) (“The creative spark [necessary to render a compilation copyrightable] is missing where . . . industry conventions or other external factors so dictate selection that any person composing a compilation of the type at issue would necessarily select the same categories of information . . .”).

¹⁹²⁷ See Section 1201 Report at 92 (“[V]irtually all agree that section 1201 was not intended to facilitate manufacturers’ use of TPMs to facilitate product tying or to achieve a lock-in effect . . .”).

¹⁹²⁸ Mr. Jackson indicated that, in part, his purpose in seeking this exemption is to conduct security research. See AI Class 11 *Ex Parte* Meeting Summary at 1–2 (Aug. 30, 2018). To the extent applicable, the security research exemption may potentially be utilized to cover such activities. See *supra* Class 10.

3. NTIA Comments

NTIA agrees with the Acting Register that the proposed exemption is not warranted.¹⁹²⁹ In its view, “[p]roponents failed to demonstrate that the proposed class includes copyrighted works protected by TPMs.”¹⁹³⁰ NTIA further explains that “the mere existence of encryption cannot trigger a Section 1201 exemption; a copyrighted work must exist to trigger a Section 1201 exemption.”¹⁹³¹ Moreover, NTIA continues, “[e]ven if the Register were to assume that avionics data were copyrighted works, Air Informatics failed to identify clearly the proposed users of the exemption” beyond the company itself, suggesting that “the prohibition on circumvention does not adversely affect and is not likely to adversely affect users.”¹⁹³² Lastly, NTIA maintains that “[r]easonable alternatives to circumvention seem to exist,” noting that “the two relevant parties can come to an agreement for access to and use of the data.”¹⁹³³

4. Conclusion and Recommendation

Proponents’ submissions raise potentially valid concerns regarding the use of technological measures to restrict access to bulk avionics data by third parties. But proponents have provided no examples suggesting that the data or data compilations qualify as works protected by copyright, and indeed, affirmatively suggest they are not. In light of the lack of a record alleging that the relevant access controls are protecting any works protected by copyright, the Acting Register cannot recommend adoption of Proposed Class 11.

L. Proposed Class 12: Computer Programs—3D Printing

1. Background

a. Summary of Proposed Exemption

Proponents seek to expand a current exemption that permits the circumvention of access controls on computer programs in 3D printers to enable the use of non-manufacturer-approved feedstock. The current exemption language encompasses:

Computer programs that operate 3D printers that employ microchip-reliant technological measures to limit the use of feedstock, when circumvention is accomplished solely for the purpose of using alternative

¹⁹²⁹ NTIA Letter at 84.

¹⁹³⁰ *Id.* at 85.

¹⁹³¹ *Id.*

¹⁹³² *Id.* at 85–86.

¹⁹³³ *Id.* at 86.

feedstock and not for the purpose of accessing design software, design files or proprietary data; provided, however, that the exemption shall not extend to any computer program on a 3D printer that produces goods or materials for use in commerce the physical production of which is subject to legal or regulatory oversight or a related certification process, or where the circumvention is otherwise unlawful.¹⁹³⁴

Michael Weinberg filed a petition to eliminate the “qualifying language” at the end of the exemption, that is: “provided, however, that the exemption shall not extend to any computer program on a 3D printer that produces goods or materials for use in commerce the physical production of which is subject to legal or regulatory oversight or a related certification process, or where the circumvention is otherwise unlawful.”¹⁹³⁵ Comments supporting the proposed expansion were also filed by FSF and four other individuals—George Ellenburg, David Hatch, Abraham Mara, and Tim Postma.

The comments for this class generally addressed the above qualifying language as a whole, which is consistent with the discussion in the 2015 Recommendation of restricting the exemption to prevent the use of non-manufacturer-approved feedstock where, broadly, 3D-printed objects might “fail legal requirements or regulatory mandates.”¹⁹³⁶ The Acting Register, therefore, considers the qualifying language as a single unit in evaluating the proposed expansion of this exemption.

b. Overview of Issues

As described in depth during the 2015 rulemaking, 3D printing involves “various technologies that translate digital files into physical objects by adding successive layers of material.”¹⁹³⁷ These materials or “feedstock” are typically ABS or PLA plastics, but can also be metals, waste plastics, woods, or bio-tissue.¹⁹³⁸ Manufacturers of 3D printers also sell feedstock as a way to ensure some quality control and likely to also secure recurring revenue.¹⁹³⁹

¹⁹³⁴ 37 C.F.R. § 201.40(b)(9) (2016).

¹⁹³⁵ Weinberg Class 12 Pet. at 2; *see also* Weinberg Class 12 Initial at 2 (clarifying the scope of the proposed exemption as “focus[ing] on the harms created by the qualifying language in the current exemption”); Tr. at 10:15–18 (Apr. 13, 2018) (Weinberg).

¹⁹³⁶ 2015 Recommendation at 376.

¹⁹³⁷ *Id.* at 356.

¹⁹³⁸ *Id.* at 357.

¹⁹³⁹ *See* Stratasy Class 12 Opp’n at 7–8 (discussing quality control as a feature of restricting a 3D printer to specific feedstock); 2015 Recommendation at 365–66.

To ensure that the manufacturer-approved feedstock is used in a 3D printer, some manufacturers add a verification microchip attached to the feedstock cartridge that ensures that the feedstock is manufacturer-approved before the printer's software allows it to print 3D objects.¹⁹⁴⁰ Without circumventing these verification protocols, owners of TPM-protected 3D printers cannot use competitors' feedstock or tinker with their printers to use alternative feedstock.

In the 2015 rulemaking, the Register found that "proponents have established that TPMs constrain the types of feedstock that can be used in 3D printers and that this is likely to adversely affect noninfringing uses of the software that controls that functionality."¹⁹⁴¹ But opponents raised concerns that granting an exemption would cause regulatory and safety issues, particularly regarding medical implants, aerospace parts, and consumer goods.¹⁹⁴² The FDA reinforced this understanding, stating, for instance, "if a 3D printed medical device is intended for insertion into the body, then the manufacturer under FDA regulations would have to demonstrate that the products are safe and effective for that intended use."¹⁹⁴³ At the same time, the Register concluded that proponents were mainly interested in manipulating their 3D printers for consumer and experimental uses outside of the stream of commerce.¹⁹⁴⁴ Further, proponents were not seeking to access design software, design files, or proprietary data.¹⁹⁴⁵

Based on these needs and concerns, the Register considered, and rejected, limiting the exemption to noncommercial printers, as parties agreed that "it may be difficult to demarcate the line between commercial and noncommercial uses."¹⁹⁴⁶ To address the concerns of opponents and the FDA, however, the Register limited the exemption according to "the standards that govern the resulting products," excluding any 3D printer program "that produces goods or materials for use in commerce the physical production of which is subject to legal or regulatory oversight or a related certification process."¹⁹⁴⁷

¹⁹⁴⁰ 2015 Recommendation at 357.

¹⁹⁴¹ *Id.* at 376.

¹⁹⁴² *See, e.g., id.* at 366.

¹⁹⁴³ *Id.* at 375 (citing Letter from Bakul Patel, Assoc. Dir. For Digital Health, Ctr. for Devices and Radiological Health, FDA, to Jacqueline C. Charlesworth, Gen. Counsel & Assoc. Register for Copyrights, U.S. Copyright Office, at 4 (Aug. 18, 2015).

¹⁹⁴⁴ *Id.* at 377.

¹⁹⁴⁵ *Id.* at 373.

¹⁹⁴⁶ *Id.* at 377; *see also* Class 26 Post-Hearing Letter (June 3, 2015).

¹⁹⁴⁷ 2015 Recommendation at 377.

The 2015 exemption thus addressed only the actual or proposed uses of non-manufacturer-approved filament reflected in the record in that proceeding. It did not extend to either “accessing design software, design files or proprietary data” or “circumstances where the use of third-party feedstock could cause the resulting 3D-printed object to fail legal requirements or regulatory mandates, including safety certification criteria or other similar standards.”¹⁹⁴⁸ In formulating her recommendation, the Register commented that “analysis of this class generally was hampered by a limited factual record—especially as presented by proponents,”¹⁹⁴⁹ which made addressing proponents’ needs unnecessarily difficult. While proponents do not presently appear to have concerns over design software, design files, or proprietary data, there is now a better developed record regarding the qualifying language.

Currently, proponents put forth two arguments as to why the Acting Register should broaden the exemption by dropping this language. First, proponents argue that this clause creates ambiguity such that the exemption itself cannot be applied or used in the majority of circumstances. Due to the far reach of legal and regulatory oversight, they contend that the application of the qualifying language to “3D printer[s] that produce[] goods or materials for use in commerce the physical production of which is subject to legal or regulatory oversight or a related certification process” could be read to preclude the use of the exemption in a large percentage of instances.¹⁹⁵⁰ For instance, Mr. Weinberg contends that the qualifying language produced a “vague and unworkable standard for applying the existing exemption that effectively eliminates its applicability in the vast majority of situations.”¹⁹⁵¹ Similarly, Mr. Ellenburg states: “Any 3D printer can produce aircraft parts (subject to FAA approval) and medical devices (subject to FDA approval).”¹⁹⁵² Thus, proponents argue, the exemption has not had its intended effect of allowing users to circumvent TPMs in most instances.

Second, proponents argue that the concerns that the qualifying language seeks to address are more suitably addressed by other agencies.¹⁹⁵³ Essentially, proponents assert that non-copyrighted concerns should be left to other agencies.

¹⁹⁴⁸ *Id.* at 376–77.

¹⁹⁴⁹ *Id.* at 370 n.2489.

¹⁹⁵⁰ 37 C.F.R. § 201.40(b)(9) (2016).

¹⁹⁵¹ Weinberg Class 12 Initial at 1.

¹⁹⁵² Ellenburg Class 12 Reply at 2; *see also* Hatch Class 12 Reply at 2.

¹⁹⁵³ *See* Ellenburg Class 12 Reply at 2; Mara Class 12 Reply at 2; Weinberg Class 12 Initial at 1, 8.

2. Discussion

a. Works Protected by Copyright

This class again involves microchip-reliant TPMs attached to 3D printer feedstock that limit the use of alternative feedstock by preventing the 3D printer operating systems from executing and printing new objects. The operating systems constitute computer programs within the meaning of section 101. Therefore, like the 2015 rulemaking, the Acting Register finds that at least some works included in the proposed expanded class are protected by copyright.¹⁹⁵⁴

b. Asserted Noninfringing Uses

The 2015 rulemaking identified fair use as the noninfringing basis for this exemption, and the proposed expansion is evaluated on the same grounds.¹⁹⁵⁵ Proponents do not offer new fair use arguments in this rulemaking,¹⁹⁵⁶ but the Office understands proponents to be relying on the fair use record from the 2015 rulemaking. In response, Stratasys briefly argues that “any activity excluded by the ‘qualifying language’ in the Current Exemption would *not* be entitled to the fair use defense.”¹⁹⁵⁷ Ultimately, given that the record indicates that the state of the 3D printing market appears to be substantially the same as in 2015,¹⁹⁵⁸ and case law has not significantly altered the

¹⁹⁵⁴ 2015 Recommendation at 367. In the 2015 rulemaking, the Register noted that “in some cases forcing a 3D printer to accept third-party feedstock may not run afoul of section 1201(a)(1),” either because the alteration may not involve a copyrighted work or because circumvention may not be necessary to read the printer software. *Id.* (citing *Lexmark*, 387 F.3d at 547). The Register found, however, that “there are other cases where a consumer wishing to use third-party feedstock in a 3D printer would need to engage in circumvention of a TPM protecting a copyrightable work, for example, when more complex code must be modified so the printer can handle alternative feedstock.” *Id.*

¹⁹⁵⁵ In the 2015 rulemaking, section 117 was considered as a potential basis in some cases for “proponents’ claim that modifying software to permit use of non-manufacturer-approved feedstock may also be a noninfringing use,” but that conclusion was not central to the Register’s determination. *Id.* at 369–70. During the current rulemaking proceeding, proponents do not advance section 117 as a noninfringing basis for this exemption. *See generally* Weinberg Class 12 Initial; Weinberg Class 12 Reply. Stratasys argues that section 117 is inapplicable. *See* Stratasys Class 12 Opp’n at 5. The Office, therefore, does not consider section 117 as a noninfringing basis for this exemption at this time.

¹⁹⁵⁶ *See* Weinberg Class 12 Initial; Weinberg Class 12 Reply.

¹⁹⁵⁷ Stratasys Class 12 Opp’n at 4.

¹⁹⁵⁸ Tr. at 34:11–15 (Apr. 13, 2018) (Chapman, Stratasys) (“I don’t think there’s been any trend to have more TPMs, I think it’s similar to the marketplace in 2015, that there are printers that are not locked with TPMs and there are printers that are.”).

relevant fair use issues, the Acting Register considers fair use in much the same way as in the 2015 Recommendation. The Acting Register thus again concludes that the copying or modifying of printer software to accept non-manufacturer-approved feedstock is likely to be a fair use.

Regarding the first factor, the purpose and character of the use, the Register previously “note[d] that interoperability is recognized as a favored purpose under the law. The record shows that in many cases, third-party feedstock cannot be used without altering the printer operating system software.”¹⁹⁵⁹ This conclusion applies equally to the proposed expansion.

Here, Stratasys argues that the difference between the current and proposed exemption is that the proposed exemption “enables circumvention in all commercial settings,” and “every commercial use of copyrighted material is presumptively an unfair exploitation of the monopoly privilege that belongs to the owner of the copyright”¹⁹⁶⁰ It contends that expanding the current exemption “beyond the zone of non-commercial, personal uses” weighs against finding a fair use on the first factor.¹⁹⁶¹

While it is relevant that the proposed exemption would allow for a greater swath of commercial uses, Stratasys mischaracterizes the effect that the commercial purpose element has on a fair use analysis; the Supreme Court has clarified that there is no “hard evidentiary presumption” against commercial uses and that such uses must be addressed through a “sensitive balancing of interests.”¹⁹⁶²

More importantly, there is no bright-line distinction between the current and proposed exemptions on the basis of whether commercial uses are permitted. The current exemption already permits circumvention of TPMs to allow for alternative feedstock for some commercial purposes; the qualifying language disallows such circumvention only where the produced goods are both commercial in nature and the physical production of the goods is subject to legal or regulatory oversight or a related certification process.¹⁹⁶³

¹⁹⁵⁹ 2015 Recommendation at 368 (citations omitted).

¹⁹⁶⁰ Stratasys Class 12 Opp’n at 4 (quoting *Sony*, 464 U.S. at 451).

¹⁹⁶¹ *Id.*

¹⁹⁶² *Campbell*, 510 U.S. at 584 (quoting *Sony*, 464 U.S. at 455 n.40) (noting that “[t]he language of the statute makes clear that the commercial or nonprofit educational purpose of a work is only one element of the first factor enquiry into its purpose and character. . . . If, indeed, commerciality carried presumptive force against a finding of fairness, the presumption would swallow nearly all of the illustrative uses listed in the preamble paragraph of § 107, including news reporting, comment, criticism, teaching, scholarship, and research, since these activities ‘are generally conducted for profit in this country.’”) (quoting *Harper & Row*, 471 U.S. at 592 (Brennan, J., dissenting)).

¹⁹⁶³ 37 C.F.R. § 201.40(b)(9) (2016).

Accordingly, the Acting Register finds Stratasys's position unpersuasive and concludes that factor one favors proponents.

The Acting Register concludes that the second factor, the nature of the copyrighted work, favors finding a fair use. As in the 2015 rulemaking, the record establishes that computer programs that control the type of feedstock allowed in a 3D printer are largely functional, rather than expressive, in nature.¹⁹⁶⁴ Moreover, proponents seek to access such computer programs for their functionality, *i.e.*, gaining the ability to use a 3D printer in a different manner, rather than for creative purposes, such as altering or incorporating the computer program into an original work.

The third factor, the amount and substantiality of the portion used in relation to the copyrighted work as a whole, remains neutral as to the expanded exemption, as the analysis remains substantially the same as in the 2015 rulemaking. In that proceeding, the Register concluded that this factor favored neither party, because "there was very little record of how much the printer operating system software would need to be changed to use third-party feedstock—only that it could 'vary.'"¹⁹⁶⁵ While Stratasys contends "the amount that needs to be copied [] would likely be considerable,"¹⁹⁶⁶ this statement is based upon the same testimony that the Register earlier concluded demonstrated variation.¹⁹⁶⁷

The Acting Register again concludes that the fourth factor, the effect of the use upon the potential market for or value of the copyrighted work, favors fair use. While Stratasys generally states that "the market for copyright-protected works would be negatively impacted if the exemption extended to commercial users,"¹⁹⁶⁸ it does not offer any further analysis of the current market. Because there have been no significant developments in the relevant facts or case law, the Acting Register adopts the approach of the 2015 Recommendation in focusing on the market for the printer operating system

¹⁹⁶⁴ Weinberg Class 12 Initial at 6–7; Stratasys Class 12 Opp'n at 7.

¹⁹⁶⁵ 2015 Recommendation at 369.

¹⁹⁶⁶ Stratasys Class 12 Opp'n at 4.

¹⁹⁶⁷ *Id.* (Ms. Charlesworth: "Do you need to copy the software in order to make the modification required for changing you feedstock?" Mr. Weinberg: "It depends on the software implementation." Ms. Charlesworth: "Okay. So it seems there is a lot of variation." Mr. Weinberg: "Absolutely.") (quoting Tr. at 141:15–22 (May 28, 2015)).

¹⁹⁶⁸ *Id.* at 5. Stratasys again mischaracterizes proponents' request, suggesting that the difference between the current and proposed exemptions is that the former disallows all commercial uses, while the latter would permit all commercial uses. As noted above, the current exemption already allows for circumvention for commercial uses that are not subject to separate legal or regulatory regimes.

software rather than the 3D printer as a whole.¹⁹⁶⁹ In the 2015 Recommendation, the Register noted that “there does not appear to be a market for printer operating system programs separate from the 3D printers themselves, or a quantifiable way to apportion the value of the 3D printer attributable to the software features.”¹⁹⁷⁰ The new testimony in this cycle reinforces this conclusion.¹⁹⁷¹ Since neither proponents nor Stratasys pointed to any changes in the 3D printer market that would alter the valuation of printer operating system programs, the conclusion in the 2015 Recommendation that the fourth factor favors fair use remains pertinent to the proposed expansion.

In sum, the Acting Register finds that proponents have met their burden in demonstrating that the proposed expanded language to permit the use of alternative feedstock for additional commercial uses is likely to be a fair use.

c. Causation

The Acting Register finds that proponents have met their burden of showing that the current qualifying language limits their ability to make the noninfringing uses of 3D printer operating systems described above. But for the qualifying language, proponents likely could gain lawful access to the operating systems for purposes of engaging in those uses.

d. Asserted Adverse Effects

The first four statutory factors do not fit neatly onto this situation, where language is being removed to relieve a regulatory limitation. Therefore, the Office focuses its analysis on the fifth factor with respect to the safety and related concerns raised by participants.

With regard to the first factors, the record remains limited. Proponents do not offer new arguments or evidence on these factors. Stratasys offers only a blanket statement that relies on the record from the 2015 rulemaking:

[O]n balance, the statutory factors do not favor any exemption for TPMs on 3D printers. . . . [The] reasoning [provided in Stratasys’ opposition comment during the 2015 rulemaking] is especially applicable to the areas into which Petitioners want to broaden the Current Exemption—3D

¹⁹⁶⁹ 2015 Recommendation at 369.

¹⁹⁷⁰ *Id.*

¹⁹⁷¹ See Tr. at 49:14–17 (Apr. 13, 2018) (Weinberg) (stating he does not “believe that there are concerns being raised that there are standalone markets for the software running these machines”).

printers used to create commercial products, including in regulated industries.¹⁹⁷²

Because the record has not relevantly expanded or changed since the last rulemaking, and the parties did not establish that the inclusion or exclusion of the qualifying language would have any particular impact on these factors, the Acting Register adopts the conclusions made in the 2015 Recommendation. Specifically, as for the first factor, the “record does not demonstrate that an exemption would threaten the availability of [3D printer operating] software, or, indeed, that a viable market for this type of software exists separate from the printers themselves.”¹⁹⁷³ And, with respect to factor four, there is no independent market for 3D printer operating software.¹⁹⁷⁴ In addition, as with the last rulemaking, there is insufficient evidence to suggest that the 3D printers operate as secure distribution platforms for creative works.¹⁹⁷⁵

The fifth factor, which allows for consideration of such other factors as the Librarian deems appropriate, merits further analysis. The Office previously considered safety and health concerns related to allowing non-manufacturer-approved feedstock to print 3D objects that may enter into the stream of commerce, which was a factor in the adoption of the qualifying language. The Register concluded that while “[associated] safety and regulatory concerns are not copyright-related,” they were “sufficiently weighty to merit consideration in drafting an exemption.”¹⁹⁷⁶ This was largely based on the fact that the Food and Drug Administration submitted “a letter to the Office, explaining that an exemption for this class might create unintended public health and safety risks in relation to medical devices produced using 3D printers.”¹⁹⁷⁷ Considering that letter alongside the thin record for such uses, “the Register f[ound] that it [was] appropriate to limit the exemption to exclude uses that may be subject to regulation or certification.”¹⁹⁷⁸

In this rulemaking, proponents argue that such health and safety concerns are so tangentially related to the topic at hand that they are outside the scope of this proceeding.¹⁹⁷⁹ Proponents do not deny that this rulemaking may create consequences

¹⁹⁷² *Stratasys Class 12 Opp’n* at 6–7 (citation omitted).

¹⁹⁷³ 2015 Recommendation at 372.

¹⁹⁷⁴ *See id.* 373–74.

¹⁹⁷⁵ *See id.* at 374.

¹⁹⁷⁶ *Id.* at 375.

¹⁹⁷⁷ *Id.* (citing Letter from Bakul Patel, Assoc. Dir. for Digital Health, Ctr. for Devices and Radiological Health, FDA, to Jacqueline C. Charlesworth, Gen. Counsel & Assoc. Register of Copyrights, U.S. Copyright Office, at 4 (Aug. 18, 2015)).

¹⁹⁷⁸ *Id.*

¹⁹⁷⁹ *Weinberg Class 12 Initial 7–8* (“There is no reason to believe that Congress crafted . . . Section [1201] in order to grant the Copyright Office broad authority over issues of health or safety

touching on such health and safety concerns, but they urge the Office to leave concerns unrelated to copyright to the appropriate government agencies.¹⁹⁸⁰

Further, the expanded record now shows that there are situations in which an individual may be complying with relevant law or regulations but still be at risk of violating section 1201 due to the exemption's qualifying language. For instance, Mr. Weinberg explains that smaller-scale operations utilizing 3D printers in particular may be producing objects "subject to legal or regulatory oversight or a related certification process" and complying with those rules yet still face penalties under section 1201.¹⁹⁸¹ Specifically, he suggests that individual sellers of homemade wares¹⁹⁸² and small companies creating medical devices¹⁹⁸³ risk running afoul of section 1201 even if those uses are in compliance with related laws and regulations in their respective industries. He contends that given the breadth of regulatory and legal oversight in the United States, including of all consumer goods by the Consumer Product Safety Commission, there are few instances in which the exemption as currently worded can be utilized.¹⁹⁸⁴

In contrast, Stratasys states that "[t]he safety and policy concerns considered under the 'fifth factor' are at least as significant today as they were three years ago, and thus the integrity of TPMs deserves at least as much protection."¹⁹⁸⁵ It describes the advantages of a 3D printer with a closed system, *i.e.*, one that "restrict[s] a particular system to specific materials,"¹⁹⁸⁶ explaining that "[s]ome systems are closed because of the need to mitigate risks involved in the use of a specific material, such as fire hazards or hazardous fumes."¹⁹⁸⁷ Stratasys argues that an expanded exemption "could also leave such [3D] printers vulnerable to intrusion."¹⁹⁸⁸ Relatedly, during the hearing, Stratasys

concerns as long as those concerns had some imaginable nexus with TPMs. . . . If the FDA, or any other regulatory agency of the United States Government, believes that it has been insufficiently empowered by Congress to carry out its mission, it should not rely on the Copyright Office to fill the gaps.").

¹⁹⁸⁰ See Weinberg Class 12 Reply at 2.

¹⁹⁸¹ Weinberg Class 12 Initial 6–7.

¹⁹⁸² Tr. at 24:19–22 (Apr. 13, 2018) (Weinberg) ("If you were to manufacture something that was defective and sell it on Pinterest, then you would be liable under a legal or regulatory regime.").

¹⁹⁸³ Tr. at 15:12–18 (Apr. 13, 2018) (Weinberg).

¹⁹⁸⁴ Weinberg Class 12 Initial at 7 ("The legal and regulatory system of the United States is vast and touches on almost any good that could be created by a 3D printer.").

¹⁹⁸⁵ Stratasys Class 12 Opp'n at 7.

¹⁹⁸⁶ *Id.*

¹⁹⁸⁷ *Id.* at 9.

¹⁹⁸⁸ *Id.*

informed the Office that 3D printed materials often go through testing before commercial use, even outside of regulations provided by other agencies, indicating that there are quality control measures in place outside of regulatory oversight.¹⁹⁸⁹

In considering these arguments, the Acting Register notes that the Office's general practice is to limit its analysis under the fifth factor to matters bearing on traditional copyright concerns, absent unusual circumstances. As the Office stated in its Section 1201 Report:

[W]hile the Office declines to categorically exclude "non-copyright" concerns from the fifth statutory factor, the Office also reiterates that the rulemaking must be "principally focused on the copyright concerns implicated by any proposed exemption," and that it is not typical for safety and environmental concerns to play a significant role in the Register's recommendation.¹⁹⁹⁰

Such circumstances are not present here. The record establishes that there are safeguards outside of the current exemption addressing health and safety concerns associated with 3D printing. For example, Stratasy's testified regarding the many types of inspections and force tests to which the industry voluntarily subjects some 3D-printed objects.¹⁹⁹¹ Stratasy's confirmed that 3D-printed objects made with non-manufacturer-approved feedstock may be tested in the same manner.¹⁹⁹² In addition, the FDA recently issued guidance regarding 3D printed medical devices.¹⁹⁹³ Relatedly, the FAA has announced a strategic roadmap for a regulatory drafting effort regarding 3D printing that is expected to be ongoing for the next several years.¹⁹⁹⁴ Stratasy's' safety-related concerns are more appropriately raised before such entities.

Under the current, broader record, the Acting Register concludes that the qualifying language in the existing exemption may be inhibiting otherwise beneficial or innovative

¹⁹⁸⁹ See Tr. at 55:10–60:19 (Apr. 13, 2018) (Chapman, Stratasy's) (discussing the various tests and inspection 3D printed objects go through before use).

¹⁹⁹⁰ Section 1201 Report at 125 (quoting 2015 Recommendation at 248).

¹⁹⁹¹ See Tr. at 55:10–60:19 (Apr. 13, 2018) (Chapman, Stratasy's).

¹⁹⁹² Tr. at 59:08–14 (Apr. 13, 2018) (Chapman, Stratasy's).

¹⁹⁹³ FDA, TECHNICAL CONSIDERATIONS FOR ADDITIVE MANUFACTURED MEDICAL DEVICES: GUIDANCE FOR INDUSTRY AND FOOD AND DRUG ADMINISTRATION STAFF (2017), <https://www.fda.gov/downloads/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/UCM499809.pdf>.

¹⁹⁹⁴ Debra Werner, *FAA Prepares Guidance for Wave of 3D-printed Aerospace Parts*, SPACENEWS (Oct. 20, 2017), <https://spacenews.com/faa-prepares-guidance-for-wave-of-3d-printed-aerospace-parts/> (including regulations, "certification policies, manufacturing policies and maintenance policies").

uses of alternate feedstock, which is contrary to the intention of that exemption. Moreover, while the record shows an expanded demand to engage in uses prohibited under the current exemption, it does not demonstrate that this limiting language is serving to meaningfully alleviate the health and safety concerns raised during the 2015 rulemaking. In any event, as noted, the record makes clear that other regulatory forums are available to address such issues.

3. NTIA Comments

NTIA agrees with the Acting Register's recommendation to expand the exemption by removing the current qualifying language.¹⁹⁹⁵ In NTIA's view, "[p]roponent's proposed use likely constitutes fair use."¹⁹⁹⁶ NTIA highlights that, among other things, the current exemption "suppresses many noncommercial uses of 3D printing, such as scientific research."¹⁹⁹⁷ Regarding health and safety matters, "NTIA recommends that the Librarian leave the resolution of any public safety related concerns to the agencies with the requisite expertise and jurisdiction to address them."¹⁹⁹⁸

NTIA proposes the same regulatory text it submitted in 2015, which differs from the current language in certain respects.¹⁹⁹⁹ For example, NTIA proposes requiring that "circumvention is undertaken for the purpose of enabling interoperability of feedstock or filament with the device."²⁰⁰⁰ NTIA does not provide specific rationale for altering the regulatory text beyond removing the qualifying language.

4. Conclusion and Recommendation

After thorough consideration, the Office recommends expanding the exemption by eliminating the reference to adherence to other regulatory oversight or certification processes for the reasons discussed above. The Acting Register recommends that the Librarian designate the following class:

Computer programs that operate 3D printers that employ microchip-reliant technological measures to limit the use of feedstock, when circumvention is accomplished solely for the purpose of using alternative feedstock and not for the purpose of accessing design software, design files, or proprietary data.

¹⁹⁹⁵ NTIA Letter at 87.

¹⁹⁹⁶ *Id.* at 88.

¹⁹⁹⁷ *Id.*

¹⁹⁹⁸ *Id.* at 89 & n.460.

¹⁹⁹⁹ *See id.* at 90; NTIA 2015 Letter at 92.

²⁰⁰⁰ NTIA Letter at 90.

APPENDIX **RECOMMENDED REGULATORY LANGUAGE**

Recommended Regulatory Language

(a) *General.* This section prescribes the classes of copyrighted works for which the Librarian of Congress has determined, pursuant to 17 U.S.C. 1201(a)(1)(C) and (D), that noninfringing uses by persons who are users of such works are, or are likely to be, adversely affected. The prohibition against circumvention of technological measures that control access to copyrighted works set forth in 17 U.S.C. 1201(a)(1)(A) shall not apply to such users of the prescribed classes of copyrighted works.

(b) *Classes of copyrighted works.* Pursuant to the authority set forth in 17 U.S.C. 1201(a)(1)(C) and (D), and upon the recommendation of the Register of Copyrights, the Librarian has determined that the prohibition against circumvention of technological measures that effectively control access to copyrighted works set forth in 17 U.S.C. 1201(a)(1)(A) shall not apply to persons who engage in noninfringing uses of the following classes of copyrighted works:

(1) Motion pictures (including television shows and videos), as defined in 17 U.S.C. 101, where the motion picture is lawfully made and acquired on a DVD protected by the Content Scramble System, on a Blu-ray disc protected by the Advanced Access Content System, or via a digital transmission protected by a technological measure, and the person engaging in circumvention under paragraph (b)(1)(i) and (b)(1)(ii)(A) and (B) of this section reasonably believes that non-circumventing alternatives are unable to produce the required level of high-quality content, or the circumvention is undertaken using screen-capture technology that appears to be offered to the public as enabling the reproduction of motion pictures after content has been lawfully acquired and decrypted, where circumvention is undertaken solely in order to make use of short portions of the motion pictures in the following instances:

(i) For the purpose of criticism or comment:

(A) For use in documentary filmmaking, or other films where the motion picture clip is used in parody or for its biographical or historically significant nature;

(B) For use in noncommercial videos (including videos produced for a paid commission if the commissioning entity's use is noncommercial); or

(C) For use in nonfiction multimedia e-books.

(ii) For educational purposes:

(A) By college and university faculty and students or kindergarten through twelfth-grade (K-12) educators and students (where the K-12 student is circumventing under the direct supervision of an educator), including of accredited general educational development (GED) programs, for the purpose of criticism, comment, teaching, or scholarship;

(B) By faculty of massive open online courses (MOOCs) offered by accredited nonprofit educational institutions to officially enrolled students through online platforms (which platforms themselves may be operated for profit), in film studies or other courses requiring close analysis of film and media excerpts, for the purpose of criticism or comment, where the MOOC provider through the online platform limits transmissions to the extent technologically feasible to such officially enrolled students, institutes copyright policies and provides copyright informational materials to faculty, students, and relevant staff members, and applies technological measures that reasonably prevent unauthorized further dissemination of a work in accessible form to others or retention of the work for longer than the course session by recipients of a transmission through the platform, as contemplated by 17 U.S.C. 110(2); or

(C) By educators and participants in nonprofit digital and media literacy programs offered by libraries, museums, and other nonprofit entities with an educational mission, in the course of face-to-face instructional activities, for the purpose of criticism or comment, except that such users may only circumvent using screen-capture technology that appears to be offered to the public as enabling the reproduction of motion pictures after content has been lawfully acquired and decrypted.

(2)

(i) Motion pictures (including television shows and videos), as defined in 17 U.S.C. 101, where the motion picture is lawfully acquired on a DVD protected by the Content Scramble System, on a Blu-ray disc protected by the Advanced Access Content System, or via a digital transmission protected by a technological measure, where:

(A) Circumvention is undertaken by a disability services office or other unit of a kindergarten through twelfth-grade educational

institution, college, or university engaged in and/or responsible for the provision of accessibility services to students, for the purpose of adding captions and/or audio description to a motion picture to create an accessible version as a necessary accommodation for a student or students with disabilities under an applicable disability law, such as the Americans With Disabilities Act, the Individuals with Disabilities Education Act, or Section 504 of the Rehabilitation Act;

(B) The educational institution unit in paragraph (b)(2)(i)(A) of this section has, after a reasonable effort, determined that an accessible version cannot be obtained at a fair price or in a timely manner; and

(C) The accessible versions are provided to students or educators and stored by the educational institution in a manner intended to reasonably prevent unauthorized further dissemination of a work.

(ii) For purposes of this paragraph(b)(2), “audio description” means an oral narration that provides an accurate rendering of the motion picture.

(3) Literary works, distributed electronically, that are protected by technological measures that either prevent the enabling of read-aloud functionality or interfere with screen readers or other applications or assistive technologies:

(i) When a copy of such a work is lawfully obtained by a blind or other person with a disability, as such a person is defined in 17 U.S.C. 121; provided, however, that the rights owner is remunerated, as appropriate, for the price of the mainstream copy of the work as made available to the general public through customary channels; or

(ii) When such work is a nondramatic literary work, lawfully obtained and used by an authorized entity pursuant to 17 U.S.C. 121.

(4) Literary works consisting of compilations of data generated by medical devices that are wholly or partially implanted in the body or by their corresponding personal monitoring systems, where such circumvention is undertaken by a patient for the sole purpose of lawfully accessing the data generated by his or her own device or monitoring system and does not constitute a violation of applicable law, including without limitation the Health Insurance Portability and Accountability Act of 1996, the Computer Fraud and Abuse Act of 1986 or regulations of the Food and Drug Administration, and is accomplished through the passive monitoring of wireless transmissions that are already being produced by such device or monitoring system.

(5) Computer programs that enable the following types of lawfully acquired wireless devices to connect to a wireless telecommunications network, when circumvention is undertaken solely in order to connect to a wireless telecommunications network and such connection is authorized by the operator of such network:

- (i) Wireless telephone handsets (i.e., cellphones);
- (ii) All-purpose tablet computers;
- (iii) Portable mobile connectivity devices, such as mobile hotspots, removable wireless broadband modems, and similar devices; and
- (iv) Wearable wireless devices designed to be worn on the body, such as smartwatches or fitness devices.

(6) Computer programs that enable smartphones and portable all-purpose mobile computing devices to execute lawfully obtained software applications, where circumvention is accomplished for the sole purpose of enabling interoperability of such applications with computer programs on the smartphone or device, or to permit removal of software from the smartphone or device. For purposes of this paragraph (b)(6), a “portable all-purpose mobile computing device” is a device that is primarily designed to run a wide variety of programs rather than for consumption of a particular type of media content, is equipped with an operating system primarily designed for mobile use, and is intended to be carried or worn by an individual.

(7) Computer programs that enable smart televisions to execute lawfully obtained software applications, where circumvention is accomplished for the sole purpose of enabling interoperability of such applications with computer programs on the smart television.

(8) Computer programs that enable voice assistant devices to execute lawfully obtained software applications, where circumvention is accomplished for the sole purpose of enabling interoperability of such applications with computer programs on the device, or to permit removal of software from the device, and is not accomplished for the purpose of gaining unauthorized access to other copyrighted works. For purposes of this paragraph (b)(8), a “voice assistant device” is a device that is primarily designed to run a wide variety of programs rather than for consumption of a particular type of media content, is designed to take user input primarily by voice, and is designed to be installed in a home or office.

(9) Computer programs that are contained in and control the functioning of a lawfully acquired motorized land vehicle such as a personal automobile, commercial vehicle, or mechanized agricultural vehicle, except for programs accessed through a separate subscription service, when circumvention is a necessary step to allow the diagnosis, repair, or lawful modification of a vehicle function, where such circumvention does not constitute a violation of applicable law, including without limitation regulations promulgated by the Department of Transportation or the Environmental Protection Agency, and is not accomplished for the purpose of gaining unauthorized access to other copyrighted works.

(10) Computer programs that are contained in and control the functioning of a lawfully acquired smartphone or home appliance or home system, such as a refrigerator, thermostat, HVAC, or electrical system, when circumvention is a necessary step to allow the diagnosis, maintenance, or repair of such a device or system, and is not accomplished for the purpose of gaining access to other copyrighted works. For purposes of this paragraph (b)(10):

(i) The “maintenance” of a device or system is the servicing of the device or system in order to make it work in accordance with its original specifications and any changes to those specifications authorized for that device or system; and

(ii) The “repair” of a device or system is the restoring of the device or system to the state of working in accordance with its original specifications and any changes to those specifications authorized for that device or system.

(11)

(i) Computer programs, where the circumvention is undertaken on a lawfully acquired device or machine on which the computer program operates, or is undertaken on a computer, computer system, or computer network on which the computer program operates with the authorization of the owner or operator of such computer, computer system, or computer network, solely for the purpose of good-faith security research and does not violate any applicable law, including without limitation the Computer Fraud and Abuse Act of 1986.

(ii) For purposes of this paragraph (b)(11), “good-faith security research” means accessing a computer program solely for purposes of good-faith testing, investigation, and/or correction of a security flaw or vulnerability, where such activity is carried out in an environment designed to avoid any harm to individuals or the public, and where the information derived from the activity is used primarily to promote the security or safety of the

class of devices or machines on which the computer program operates, or those who use such devices or machines, and is not used or maintained in a manner that facilitates copyright infringement.

(12)

(i) Video games in the form of computer programs embodied in physical or downloaded formats that have been lawfully acquired as complete games, when the copyright owner or its authorized representative has ceased to provide access to an external computer server necessary to facilitate an authentication process to enable gameplay, solely for the purpose of:

(A) Permitting access to the video game to allow copying and modification of the computer program to restore access to the game for personal, local gameplay on a personal computer or video game console; or

(B) Permitting access to the video game to allow copying and modification of the computer program to restore access to the game on a personal computer or video game console when necessary to allow preservation of the game in a playable form by an eligible library, archives, or museum, where such activities are carried out without any purpose of direct or indirect commercial advantage and the video game is not distributed or made available outside of the physical premises of the eligible library, archives, or museum.

(ii) Video games in the form of computer programs embodied in physical or downloaded formats that have been lawfully acquired as complete games, that do not require access to an external computer server for gameplay, and that are no longer reasonably available in the commercial marketplace, solely for the purpose of preservation of the game in a playable form by an eligible library, archives, or museum, where such activities are carried out without any purpose of direct or indirect commercial advantage and the video game is not distributed or made available outside of the physical premises of the eligible library, archives, or museum.

(iii) Computer programs used to operate video game consoles solely to the extent necessary for an eligible library, archives, or museum to engage in the preservation activities described in paragraph (b)(12)(i)(B) or (b)(12)(ii) of this section.

(iv) For purposes of this paragraph (b)(12), the following definitions shall apply:

(A) For purposes of paragraph (b)(12)(i)(A) and (b)(12)(ii) of this section, “complete games” means video games that can be played by users without accessing or reproducing copyrightable content stored or previously stored on an external computer server.

(B) For purposes of paragraph (b)(12)(i)(B) of this section, “complete games” means video games that meet the definition in paragraph (b)(12)(iv)(A) of this section, or that consist of both a copy of a game intended for a personal computer or video game console and a copy of the game’s code that was stored or previously stored on an external computer server.

(C) “Ceased to provide access” means that the copyright owner or its authorized representative has either issued an affirmative statement indicating that external server support for the video game has ended and such support is in fact no longer available or, alternatively, server support has been discontinued for a period of at least six months; provided, however, that server support has not since been restored.

(D) “Local gameplay” means gameplay conducted on a personal computer or video game console, or locally connected personal computers or consoles, and not through an online service or facility.

(E) A library, archives, or museum is considered “eligible” when the collections of the library, archives, or museum are open to the public and/or are routinely made available to researchers who are not affiliated with the library, archives, or museum.

(13)

(i) Computer programs, except video games, that have been lawfully acquired and that are no longer reasonably available in the commercial marketplace, solely for the purpose of lawful preservation of a computer program, or of digital materials dependent upon a computer program as a condition of access, by an eligible library, archives, or museum, where such activities are carried out without any purpose of direct or indirect commercial advantage and the program is not distributed or made available outside of the physical premises of the eligible library, archives, or museum.

(ii) For purposes of the exemption in paragraph (b)(13)(i) of this section, a library, archives, or museum is considered “eligible” if—

(A) The collections of the library, archives, or museum are open to the public and/or are routinely made available to researchers who are not affiliated with the library, archives, or museum;

(B) The library, archives, or museum has a public service mission;

(C) The library, archives, or museum’s trained staff or volunteers provide professional services normally associated with libraries, archives, or museums;

(D) The collections of the library, archives, or museum are composed of lawfully acquired and/or licensed materials; and

(E) The library, archives, or museum implements reasonable digital security measures as appropriate for the activities permitted by this paragraph (b)(13).

(14) Computer programs that operate 3D printers that employ microchip-reliant technological measures to limit the use of feedstock, when circumvention is accomplished solely for the purpose of using alternative feedstock and not for the purpose of accessing design software, design files, or proprietary data.

(c) *Persons who may initiate circumvention.* To the extent authorized under paragraph (b) of this section, the circumvention of a technological measure that restricts wireless telephone handsets or other wireless devices from connecting to a wireless telecommunications network may be initiated by the owner of any such handset or other device, by another person at the direction of the owner, or by a provider of a commercial mobile radio service or a commercial mobile data service at the direction of such owner or other person, solely in order to enable such owner or a family member of such owner to connect to a wireless telecommunications network, when such connection is authorized by the operator of such network.

